

Dental

Abstracts

a selection of world dental literature

AMERICAN DENTAL ASSOCIATION

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Abstracts

Lon W. Morrey, D.D.S., editor

N. C. Hudson, assistant editor

AMERICAN DENTAL ASSOCIATION

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**Dental
Abstracts
has
these
purposes**

1. *To present a selection of pertinent literature representative of all points of view within the profession;*
2. *To provide, by a few hours' reading each month, a survey of the significant advances being made by dentistry throughout the world, as reflected in current dental literature; and*
3. *To supply enough data in each abstract so that the reader may determine whether he wishes to refer to the original article for more complete information.*

The abstracts are grouped in broad classifications. The specialist will learn from this periodical of work done in other fields as well as in his own. The general practitioner will be able to keep abreast of modern knowledge in the various specialties. Articles from which abstracts have been made are on file in the Library of the American Dental Association and may be borrowed by members of the Association. Requests for articles should be addressed to the Bureau of Library and Indexing Service, American Dental Association, 222 East Superior Street, Chicago 11, Illinois. Only three articles may be borrowed at one time, and they may not be kept longer than one week. No charge is made to Association members for this service.

Periodontics and endodontics



Endodontics

Improvements in root canal treatment

(Beitrag zu einer besseren

Wurzelkanalaufbereitung)

Erwin Kistler. *Deut. Zahnärztebl.* 9:891-893

Dec. 22, 1955

Root canal treatment remains one of the most frequently discussed problems in dentistry. For many dentists a psychological barrier against endodontic therapy exists. In the past, and even occasionally in the present, articles have been published in which the authors condemn all forms of root canal treatment.

There are successes and failures in dental prosthetics, in oral and plastic surgery, and also in endodontic therapy.

Dentists agree that the patient's own teeth are preferable to any substitution, that a fixed bridge is more desirable than a partial denture, and that a partial denture is preferable to a complete denture. A proper endodontic treatment of infected molars, therefore, can mean the difference between the utilization of a certain type of restoration and a less favorable prosthetic procedure.

It is not in the interest of dentistry to condemn root canal treatment but to improve it.

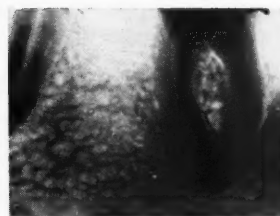
The first major requirement for successful endodontic practice is an accurate diagnosis and prognosis for each individual instance.

The second requirement, not less important, is the elimination of all infected parts within the root canal and the periapical region by therapeutic measures, and a bacteriologic control by a complete desiccation with oxygen ventilation.

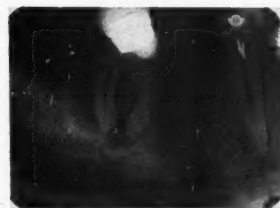
The third requirement is the hermetic sealing of the pulp canal after treatment.



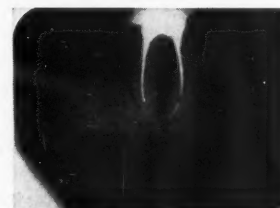
Before treatment



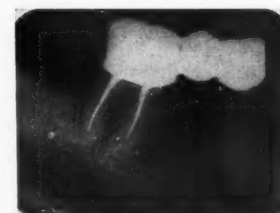
Three months after treatment



One year after treatment



One and one-half years after treatment



Three years after treatment

The ultimate goal of endodontic therapy is the obliteration of root canal spaces. Two materials usually are utilized: (1) a solid material to fill the bulk of the space, and (2) a semisolid material to fill dentinal tubules and all spaces which could not be filled with the solid material.

In filling with solid material, the following observations can be made: (1) the dentin shows a peculiar shimmering color (Korkhaus); (2) the root canal contains secretions caused by osteitic processes in periapical tissues, and (3) the desiccation produces a hygroscopic effect which forces the secretion to enter the coronal region.

The German scientists, von Spreter, von Kreudenstein and Stüben, reported that in warming the dentin, a temperature of 53° C. is sufficient to eliminate all fluids including water from the dentinal canaliculi. This proves that desiccation with oxygen ventilation not only dries out the root canals completely but removes all fluids from the dentinal canals. These fluids, especially secretions and saliva, are desiccated immediately and completely by the effects of carbon dioxide ventilation. After desiccation, the filling material can reach the dentinal tubules to the dentoenamel border.

To illustrate this fact, the following case is reported:

The patient's first molar on the left side of the mandible presented all the characteristics of a progressive periapical osteitis which had reached the distal root after an extensive pocket formation. Hypercementosis of the mesial root also was observed. All root canals were filled with secretions.

Usually, the presence of these symptoms would contraindicate endodontic therapy, and an immediate extraction would be preferable. This molar, however, served as an anchorage for a partial denture; therefore, its preservation, even though difficult and laborious, was attempted.

The control roentgenogram shows the success of root canal treatment after preparation with oxygen ventilation.

Desiccation with oxygen ventilation is no panacea. The ability to reactivate the organism, and the patient's oral and general health condition, are important factors.

Definitive objectives in root canal treatment, however, can be achieved by a systematic utiliza-

tion of desiccation with oxygen ventilation, by correct instrumentation and by selection of the proper filling materials. The sound practice of endodontics is within the capacity of every good dentist.

(The three lower pictures submitted by the author, were not in original article.)

The formation of calcified tissue in dental pulps

Alexander Seelig. *New York D.J.* 22:260-272
June-July 1956

Pulp exposure remains a perplexing problem in dentistry. This study was undertaken to determine the influence of specific substances and infection of the physiologic process of the formation of secondary dentin after noncarious exposure of the pulp. Six rhesus monkeys, ranging in age from eight months to four years, were used. The pulp in each tooth was exposed, and the following filling materials were used: (1) dentin chips with antibiotics; (2) dentin chips with caustic alkalis; (3) dentin chips with alkali salts, and (4) dentin chips with commonly used pulp capping materials.

If the pulp is not infected and is only slightly contaminated, the addition of fresh dentin chips with a nonirritating antibiotic results in the formation of true dentin. The chips are at first united by a homogeneous matrix. As new odontoblasts are differentiated in the healthy environment, true tubular dentin is laid down, with the introduced viable chips acting as a nidus. If the pulp is infected prior to application of such filling material, the chips degenerate and abscesses form.

A suitable base in a healthy environment is requisite for the formation of dentin. Such a base is provided by viable dentin chips. Calcium hydroxide under certain conditions also serves as a suitable nidus for hard tissue formation. When calcium hydroxide is applied to infected pulp tissue, however, it destroys both tissue and bacteria. Neither the degree of tissue destruction nor the extent of bactericidal activity can be predicted.

Substances such as sterile bone powder and cotton fibers may serve as a suitable nidus, pro-

vided the pulp tissue is healthy. The basic problem appears to be the maintenance of, or restoration to health of, the exposed dental pulp. The role of calcified tissue formation is of secondary importance.

The use of high-frequency current in root canal treatment by the "Jouling" method

E. W. Kjaer. *D.Practitioner* 6:274-278
May 1956

The use of the "Joulisator" and "Joulemeter" in the treatment of root canals with high-frequency current is reported. The effect of Jouling is based on the fact that the drugs used are more active at higher temperatures. Flohr has shown (1930) that the effect of the medicaments used is doubled if the temperature is raised by 18° F. above the normal temperature.

After mechanical preparation and cleansing of the canal, the procedure is as follows:

1. A wisp of sterile cotton wool on a plain broach is moistened with 3 per cent hydrogen peroxide and inserted in the root canal. The Joulisator is placed in contact with the broach with the switch on mark "Joule" until the hydrogen peroxide foams. The process is repeated until the peroxide no longer foams.
2. The canal is washed out with absolute alcohol and dried with cotton wool. The Joulemeter is used to ascertain that the canal is dry. The lamp in the handpiece will not light when the canal is dry.
3. When the canal is dry, a wisp of cotton wool is moistened with 2 per cent chloramine and inserted in the canal. The Joulisator is used as before, the application being repeated two or three times at intervals of 15 seconds.
4. The length of the canal is measured by inserting a broach and advancing it to the apex, the Joulemeter being placed against the broach. When the point reaches the apical foramen, the bulb lights up. The length of the canal can thus be measured accurately.
5. In instances of periapical granuloma, the apex is penetrated to a distance of 1 mm. Heat is

applied five times, the temperature not exceeding 160° F.

6. In most instances the root filling can be completed at the same visit, as coagulation of the apical foramen enables the canal to be kept dry.

Of 623 instances treated by high-frequency current under roentgenographic control in a period from 1927 to 1954, 92.1 per cent were considered to be satisfactory clinically and roentgenographically. From 1951, when the Joulemeter was first used, the percentage of patients in whom good results were achieved rose to 96 per cent.

The Jouling method is useful in disinfecting the root canal as confirmed by bacteriologic tests. The slight coagulation does not seem to injure the bone and the periodontal membrane of the root. The healing of the resorption caused by the inflammation is accomplished. Chlorine is deposited in the apical delta and the foramen, and may thus prevent a recurrence. Root treatment and root filling can be done in one sitting. The length of the root filling does not affect the result.

Experimental studies on the high-frequency current treatment of dental pulp and root canal

(Koshuha denryu niyuru shizui-shochi narabini konkan-chiryo nikansuru jikkenteki kenkyu)

Jior Tomura. *J.Japan Stomat.Soc.* 23:44-64
March 1956

A 17 m. short wave, a 61 m. middle short-wave and diathermy current were applied on an extracted tooth and a glass model of the root canal in order to discover their thermal action on the tooth *in situ*. The increase of local temperature was detected by direct observation of the thermal coagulation of raw egg white or the indication of a thermoelectric couple. Despite the previous theory that most of the high-frequency current sent from a needle-shaped electrode in a root canal comes out through the apical foramen, experimental results indicated that it mainly passed through the dentinal wall of the root canal. Diathermic current passed the tooth conductively but short-wave current passed it by electric displacement. The generation of temperature was found

at the top of the electrode in a root canal in either instance, and from there heat spread over the entire canal first and then into the canal wall. The rise in temperature of the dentinal wall shown with short-wave current, therefore, should be caused mainly by the thermal conduction of heat produced in the root canal and minimally by the generation of heat here by the loss of dielectric. In diathermy, however, Joule's heat was generated in the canal wall when the current was passing. The higher temperature in the root canal resulted in better clinical effects in root canal treatment. As is generally known, however, the gingival margin was often burned in the present study. Differences of temperature between the inside and outside of the tooth were estimated at 10° C. in short-wave and 5° C. in diathermy. A bearable temperature in the periodontium is estimated at approximately under 45° C. Considerable heat which accumulates on the upper portion of the root canal by thermal convection if liquid is present in the canal raised the temperature of the parietal periodontium so the marginal gingiva was burned.

Diagnostic aids and vital pulp therapy for deciduous teeth

Ralph E. McDonald. *J.A.D.A.* 53:14-22 July 1956

When a vital pulp exposure is encountered in a deciduous or a newly erupted permanent tooth, the dentist may have as many as five choices of treatment—pulp capping, pulp curettage, pulpotomy or pulp amputation, pulpectomy and extraction. The advantages of each are listed.

The clinical aids commonly used to establish the suitability of a deciduous tooth for vital pulp therapy were evaluated. The material consisted of 40 vital deciduous teeth with carious pulp exposures. The following conclusions were reached:

1. Success in vital pulp therapy for deciduous teeth depends on accurate diagnosis and a consideration of the physical condition of the child.
2. Present-day methods of electric pulp testing are unreliable in predicting early inflammation and degenerative changes in the pulp.
3. The roentgenogram will not always provide reliable information regarding the proximity of

the carious lesion to the pulp tissue, nor will it show early periapical infection in deciduous teeth. The roentgenogram is, however, of value as a diagnostic aid since evidence of calcified masses in the pulp horn, adjacent to the carious lesion or at the entrance of the pulp canal, is an indication of advanced pulpal degeneration.

4. The absence of a toothache is not useful as a criterion for deciduous pulp therapy. A toothache at night, or the spontaneous kind other than that associated with eating, should be considered evidence of degenerative changes in the pulp.

5. Pinpoint carious exposures may be associated with a mild and probably reversible type of inflammation; large carious exposures, with degenerative changes, often are down in the pulp.

6. Profuse hemorrhage from an exposed pulp is evidence of extensive inflammation and hyperemia and a contraindication for any type of vital pulp therapy.

7. The age of the patient may be an important consideration in pulp diagnosis.

8. Children with a chronic illness or a lowered resistance should not be considered for vital pulp therapy.

9. One procedure should not be adapted to all vital exposures in deciduous teeth.

Evaluation of methods for sterilizing root canal instruments

Seymour Oliet. *Oral Surg., Oral Med. & Oral Path.* 9:666-673 June 1956

A study was undertaken to determine the clinical efficacy of the various methods used for sterilizing root canal instruments.

Assorted sizes of Kerr reamers and files, with both long and short handles were sterilized by dry heat for two hours, contaminated with various microorganisms and sterilized with various devices. Controls were maintained. The following conclusions were reached:

1. Molten metal at 425° F. for ten seconds will destroy all forms of organisms commonly found in root canals.
2. Glass beads, extrafine, at 425° F. for ten seconds will destroy all forms of organisms commonly found in root canals.

3. Hot air at 394° F. is effective against vegetative forms of organisms but not against spore forms within ten seconds.

4. Mechanical cleansing of endodontic instruments prior to sterilization is as important as the method of sterilization.

5. Chemical sterilization is uncertain in its effect on the various types of microorganisms found in root canals. Some of the chemical solutions were found to be caustic or had an objectionable odor.

6. Clinically, glass bead sterilization has several advantages over molten metal sterilization, as follows: (1) dross does not form; (2) no anti-flux is needed; (3) canals are not blocked, and (4) there is less danger of burns through spillage, as the beads do not cling to the skin or clothing. The disadvantages of glass bead sterilization are that glass beads require as much time as molten metal to attain initial sterilizing temperature and a close check with a thermometer is required to be certain that the proper sterilizing temperature has been reached when the sterilizer is not thermostatically controlled.



Periodontics

Objective periodontal recording methods.

II. Photographic and roentgenographic recording of the position of the gingival and alveolar crest in relation to the teeth

(Objektiva parodontala registreringsmetoder.

II. Fotografisk-röntgenologisk positionsbestämning av gingiva och käkben i relation till tanderna)

Claes Lundqvist, Hans-Ebbe Levin and Gunnar Johanson. *Odont.Revy* 6:344-360 Dec. 1955

Chronic inflammations of the periodontal tissue are manifested by color changes, changes in surface appearance and variations of the soft tissue apically or coronally. Usually the inflammation is first evident in the interdental space and the

papilla shows clinically the symptoms of the pathologic process later to develop into more severe periodontal diseases, characterized by deepening of gingival pockets, and resulting in loss of the interdental septum. At a later stage the process spreads to include buccal and lingual structures.

This sequence is well established through clinical observations, but a quantitative evaluation which would yield to statistical analysis would be valuable for a scientific evaluation of the development of the symptoms. An objective method has been developed for the measurement of the gingiva and alveolar crest in relation to incisor teeth. Photographic and roentgenographic recordings are made which are identical in size and allow an identical projection even if taken at time intervals of several months.

The accuracy of this recording method was investigated using ten persons for the tests. Ten series of recordings were made both in an immediate sequence and with 10 day intervals over a period of 100 days.

In patients whose jaws were fixed by acrylic splints in the molar region, the vertical position of incisor teeth, measured from their incisal edges to a fixed base line, showed a standard deviation of $\sigma = 0.55$ mm. The distance from the incisal edge to the gingival margin, the papilla and the alveolar crest was measured with a standard deviation of 0.13 to 0.22 mm. The accuracy was greatest for the alveolar crest whose position could be determined with a variation of σ of 0.13 mm. The recording method makes it possible to follow positional changes of the gingiva and the alveolar crest in relation to the teeth along definite lines parallel to the axes of the teeth.

Morphology of argyrophilic substances in the pulp in instances of periodontosis

(Morfologija argirofilnogo veshthshestva pulpy subov pri amfodontose—paradontose)

E. M. Berkovskiy and V. L. Drobyshevskij. *Stomat., Moscow* 6:11-16 Nov.-Dec. 1955

Most dental researchers believe that the argyrophilic substance of the pulp is the immediate connecting link between trophic nerves and tissues. This substance forms the perivascular membranes

which are essential for the intercellular metabolism.

Histologic examination of the pulps of 50 teeth which had been extracted from several patients afflicted with periodontosis revealed that an extensive alteration in the argyrophilic substance occurred, varying in different stages of the disease.

Normal and healthy pulp is characterized by a uniformly distributed argyrophilic network. Degenerative disturbances of the periodontium, however, cause a decomposition of argyrophilic components. In many of the pulps observed, the argyrophilic fibers were inspissated and fused with other fibers; in others they were labile and divided into fragments. Protrusions on the ends of the abnormally altered fibers were caused by irritative factors.

The thickening of the perivascular argyrophilic fibers reduces the intercellular metabolism which in turn may cause pulpal sclerosis and atrophy. These symptoms often accompany periodontosis.

Effect of enzymatic débridement upon gingival inflammation

Sanford C. Frumker. *J.D.Med.* 11:104-107
April 1956

Trypsin, an enzyme produced by the mammalian pancreas, has a rapid proteolytic effect in its purified crystalline form. Its major therapeutic advantage is that it will lyse only dead tissue and will not attack a living cell. Trypsin has been used successfully in endodontics and in the treatment of periodontal diseases (Olinger).

Crystalline trypsin (Tryptar) is supplied in two bottles, one containing the Tryptar, the other the diluent (Sorensen's Phosphate Buffered Solution). The most efficacious method of application for dental usage is by wet dressing, and the optimum concentration is 125,000 Armour Units in 0.4 cc. of diluent. Trypsin has an astringent action on inflamed gingiva; topically applied, it is an anticoagulant.

A study was made in which crystalline trypsin (Tryptar) was applied topically to facilitate débridement in gingivectomies on four patients. It facilitated an excellent débridement of the soft

white deposits, one which was not superior, however, to that accomplished by thorough mechanical cleaning. The histologic results were inconclusive. Trypsin resulted in a reduction of inflammation both in the attached and the marginal gingiva, but where much calculus was present the reduction was insignificant. Trypsin should be of aid in those instances in which a local antibiotic pack must be applied because of pain.

A case of marked localized gingival recession

J. R. Trott. *D.Practitioner* 6:288-290
May 1956

A 45 year old Indian man was referred because of an unusual degree of recession around a loose lower left first molar. The tooth had become loose over the last three or four years subsequent to the extraction of the upper left first and second molars and the upper right first molar four years previously.

The gingiva had receded almost to the apexes of both roots of the lower left first molar on the buccal aspect, and to just below the cemento-enamel junction lingually. The tooth was very loose and did not respond to vitality tests. Food debris and soft supragingival calculus had collected in the stagnation region between the exposed roots; the adjacent gingiva showed signs of inflammation. Considerable recession had occurred mesially, lingually and buccally around the upper right second molar, and to a lesser extent distally to the lower right first molar. Slight recession had occurred buccally around the incisors and bicuspid.

The etiology of the pronounced localized gingival recession around the lower left first molar is difficult to evaluate. The pattern of tooth loss and bone destruction in the molar regions is suggestive of the degenerative condition of periodontosis. The pronounced gingival recession may have been due in part to disuse. The combination of pronounced gingival recession and associated alveolar destruction appears to be unusual. It may be an instance of combined disuse atrophy and periodontosis.

Basic science



Pathology

**The relationship of senile elastosis
to actinic radiation
and to squamous cell carcinoma
of the lip: further investigation
of 835 cases**

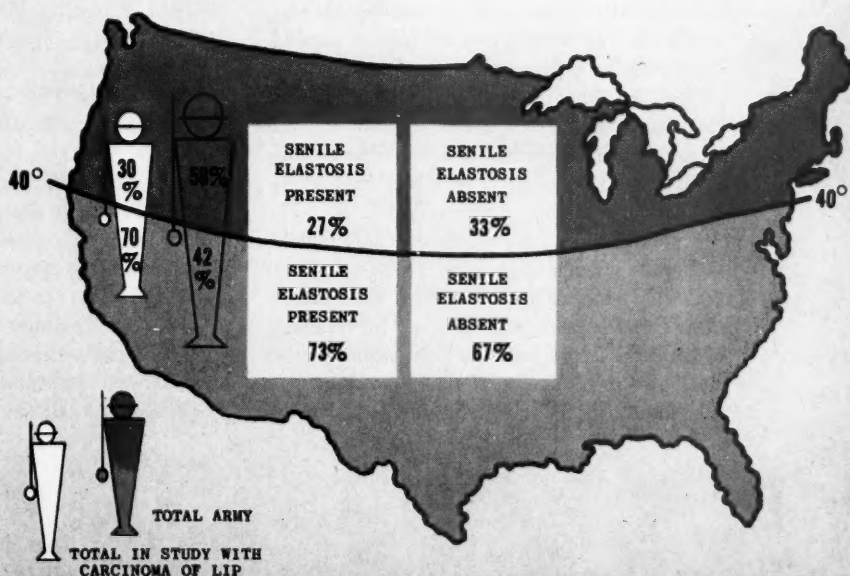
Joseph L. Bernier and Mardelle Clark Reynolds.
Mil. Med. 117:209-221 Sept. 1955

In 1951, Bernier and Clark published a critical statistical and morphological analysis of 835 cases of squamous cell carcinoma of the lip. The current report is concerned chiefly with the possibility that senile elastosis found in 640 of the carcinomas may be related to actinic radiation. Seventy-seven per cent of the patients under 30

years of age had senile elastosis. Patients with secondary diagnosis of leukoplakia, scar tissue, or evidence of damage from therapeutic radiation appeared no more likely to have senile elastosis than did patients without these diagnoses. Among patients with no prior treatment and no detected metastases, there were relatively more recurrences after initial therapy in the group without than with senile elastosis. Tabulation of the civilian occupations of World War II patients in the series showed that 69 per cent were outdoor workers as compared with only 27 per cent of all Army inductees and enlistees. The percentages of the patients with and without senile elastosis were approximately the same for outdoor and indoor workers. Senile elastosis did not appear to be related to complexion of the soldiers, since it was found in the same percentage of the patients with fair or ruddy complexions as in those with medium or dark complexions. Approximately the same percentages of patients with carcinomas on the upper as on the lower lip had senile elastosis.

Eight states contributed nearly a half (45 per cent) of the 611 patients for whom state of birth was known. Ninety-one were born in Texas; 33 in Oklahoma; 28 each in California and Georgia; and 27, 26, 24 and 21 in that order in the states of Missouri, Pennsylvania, Illinois and Virginia.

RESIDENCE OF 453 WORLD WAR II SOLDIERS WITH CARCINOMA OF LIP



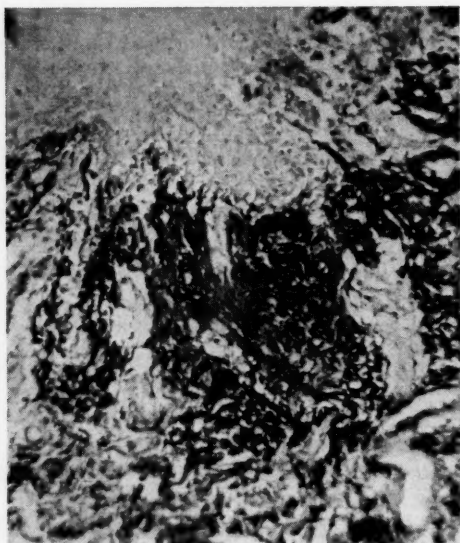
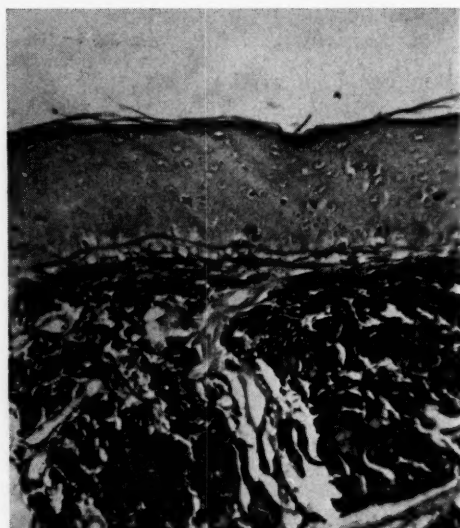


Figure 1 Senile elastosis, mucous membrane of lower lip

These same eight states also contributed 45 per cent of the 452 patients with senile elastosis and 47 per cent of the 107 with none. Only two of these states were wholly or partly above the fortieth parallel. States of residence below 40° latitude accounted for 70 per cent of the 453 World War II soldiers with senile elastosis for whom this information was available. These same states contributed only 42 per cent of all men inducted or enlisted during World War II. There was no evidence that senile elastosis was related to residence above or below the fortieth parallel. There was no evidence that the World War II patients for whom both the areas of birth and residence were below or above the fortieth parallel differed with respect to presence of senile elastosis, nor did a change of residence from above to below the parallel or vice versa.

"From this study one might conclude that although . . . senile elastosis is in part associated with chronological age, it involves some factors other than the chronological aging. No statistical evidence could be found to show association of senile elastosis with actinic radiation, other than that previously found for the carcinomas of the

Figure 2 Extensive elastic tissue change in region adjacent to carcinoma of lower lip



lip. The question remains as to whether the senile elastosis is actually a pathologic condition resulting from the carcinoma, or whether the senile elastosis may have been a localized aging mechanism which preceded the carcinomas."

Dental manifestations of systemic disease:

1. Paget's disease

George A. Morgan, Joseph Kulyk,
Colin I. Treadwell and J. Gordon Booth.
J.Canad.D.A. 22:352-354 June 1956

Paget's disease (osteitis deformans) is a skeletal condition of unknown etiology affecting most commonly the long bones, pelvis, and calvarium of the skull, and is frequently observed in the maxilla, rarely in the mandible. The disease seldom occurs in persons under 30 years old. Its incidence is about equal for both sexes, and there seems to be no familial tendency.

Stafne and Austen have described the roentgenographic evidence of osteitis deformans in the maxilla and the mandible in the early stages as one of resorption. The normal trabecular pattern

is converted to a fine, lacelike pattern. The lamina dura around the teeth in the involved regions may disappear and, in many instances, pronounced regions of resorption may be noted around the apexes of the roots. In its late stage the disease results in dense sclerotic bone frequently surrounded by regions of osteoporosis; there may be considerable enlargement and deformity of the jaws. There is generally a deposition of hyperplastic cementum laid down in a series of irregular deposits; this characteristic is diagnostic and differentiates osteitis deformans from fibrous dysplasias and other bone lesions.

Two case histories with roentgenograms are presented.

Syphilis and its management (concluded): a present-day problem

Nicholas J. Fiumara, Bernard Appel, William Hill and Herbert Mescon. *New England J. Med.* 254:1173-1178 June 21, 1956

There are many common signs which give evidence of present or past syphilis. The facies of congenital syphilis consists of bulging frontal lobes, saddleback nose, rhagades at the angles of the mouth and radiating scars at the corners of the eyes, and a concave face with short maxilla and protruding mandible. A forward and backward jerking of the head, synchronous with the heart beat (de Musset's sign), is frequently found with aortic insufficiency. The hair should be inspected for alopecia, particularly the moth-eaten type characteristic of secondary syphilis. Chronic nodules of the scalp or forehead, particularly at the hairline, may be gummas.

Small, unequal pupils that fail to respond to light but react to accommodation are present with cerebrospinal syphilis.

The person with syphilis may have a painless perforation of the nose or a painless thickening of the septum. The upper lip is a commoner site of extragenital chancres than the lower lip, particularly in women.

The teeth must be examined carefully. Hutchinson's triad of late congenital syphilis consists of interstitial keratitis, eighth nerve deadness and changes in the teeth. Hutchinson's teeth involve

the upper central incisors of the permanent dentition, but not the deciduous teeth. The teeth are short and narrow and thick in the middle, anteroposteriorly. Instead of becoming wider as they descend from the gingiva, they are narrower at their free edge than at their crown; at their free edge is a deep vertical notch made by the breaking away or underdevelopment of the middle lobe of the tooth crown. This notch, together with the "screw driver" edge of the tooth, produces the typical deformity. The deciduous molars may have what appear as multiple cusps on the grinding surface; the cusps are small, deficient in enamel, and decay easily. These are called "mulberry" molars. The upper first molar may have on its lingual aspect an accessory cusp called "carabelli tubercle." This is not a sign of congenital syphilis.

Mucous patches and primary lesions of the tongue, tonsils and pharynx should be looked for. In late syphilis a multilobulated tongue, with atrophy and leukoplakia, is seen. The palate may be perforated in this stage.

In syphilitic disease of the heart with aortic insufficiency, there may be bulging and pulsating neck vessels. The carotid arteries beat with unusual force and violence.

Procedures after positive reports, epidemiology, and evaluation of reports are discussed.

Perimyololysis: report of case (Et tilfælde af perimyololysis)

Bodil Holstgaard. *Tandlaegebl.* 59:344-356 April 1955

In 1939, 1941 and 1950, some isolated instances of perimyololysis were observed and reported by Danish authors.

In the case reported, the patient, an 11 year old boy, was examined at the Dental Institute of the University of Copenhagen. The specific symptoms of perimyololysis, such as a slow but steady destruction of the coronal hard tissues of deciduous and permanent teeth, were present. The destruction had reached its highest degree on the lingual surfaces of the teeth in the upper jaw, but occasionally also the masticatory surfaces of deciduous teeth and of the permanent

first molar in the lower jaw were afflicted. Also typical for perimylolysis was the condition of the injured surfaces: smooth, glittering, dark brown spots marked the sites where the enamel was completely destroyed.

The patient's past history revealed that the physically healthy boy, after reaching the age of seven, began to suffer from psychic disturbances and frequent vomitings during which he kept the acid contents of the stomach in his mouth. The abrasions on the masticatory surfaces of the teeth also were increased by habitual bruxism.

Dilaceration with attendant complications: a case report with notes

Lister L. de Souza. *J. All India D.A.* 28:81-82
April 1956

Dilaceration in dentistry is generally regarded to mean deformation or bending of the teeth during development. Pressure, traction or violence may cause a young tooth to bend in the developing root portion. Such an accidental phenomenon occurs chiefly in permanent teeth. Sometimes, however, the roots of deciduous teeth (especially molars) are malformed or bent at the apex, because of pressure on the occlusal surface or from the erupting permanent tooth below.

Injury to a permanent tooth which is still developing in the crypt may be caused by the following: (1) clumsy manipulation of the forceps on the jaw at birth; (2) violence on a nearby deciduous tooth, such as caused by a fall or blow; (3) unskilled extraction of a deciduous tooth, especially the lower second molar; (4) eruption or impingement of another tooth against the developing tooth; (5) encroachment of cystic enlargements on a tooth germ, and (6) the inadvertent use of traction or pressure (including bridgework and partial dentures) on young, permanent teeth.

An important factor in dilaceration is that the eruptive force, which is usually directed in the long axis of the tooth from the region of the apex upwards, is now placed at an angle. This tends to produce a rotation.

The condition dens in dente arises from the invagination of the enamel epithelium into the crown of the tooth. In such a tooth enamel may be

found in the center of the tooth. Sometimes the invaginated space may be empty. Dens in dente is commonly restricted to the anterior teeth, especially the maxillary lateral incisors. When the ingress of epithelium occurs from the root side of the tooth, the condition is known as "radicular dens in dente." Such a condition is more common in the bicuspid than in the incisors.

A 29 year old man complained of tenderness and swelling in the region of the left cuspid. The permanent maxillary left cuspid was absent, its space being occupied by the deciduous cuspid. The patient recalled having fallen and landing on the left side of his face when he was between the ages of six and nine. Roentgenograms showed a supernumerary tooth next to the right central incisor with dens in dente; a dilaceration of the central incisor; a malposed lateral incisor; a retained deciduous cuspid, and an impacted permanent cuspid.

After antibiotic therapy and premedication, the deciduous cuspid, the permanent cuspid and the dilacerated supernumerary tooth were extracted, in preparation for bridgework.

Chronic headache and temporomandibular joint dysfunction (Kronisk huvudvärk och käkledsdysfunktion)

Ragnar Berlin, Leopold Dessner and
Sigfrid Aberg. *Odont. Tskr.* 63:531-546
Dec. 1955

The etiology of chronic headaches has been discussed from many points of view during the last decades, but rather limited attention has been given to the relation between chronic headaches and temporomandibular joint dysfunction. Costen's studies, reported in 1934, 1936 and 1944, included a classification of symptoms occurring in connection with such dysfunctions, and the set of symptoms has been called Costen's syndrome. Recent textbooks on neurology and medicine almost neglect this field.

When local symptoms of temporomandibular dysfunctions are prominent, the diagnosis is easy; most often, however, the patient complains about strong pain in other parts of the head or neck. These symptoms may be combined with local symptoms such as crepitation, bruxism, deviation

of the mandible in certain positions, decreased or increased mobility of the mandible and others.

Roentgenographic examination of the temporomandibular joints at rest and in various positions is a valuable supplement to the clinical examination. In this investigation a report is given on 105 instances (92 women, 13 men) of chronic headache in connection with temporomandibular joint dysfunctions. All patients had suffered from headaches for a considerable length of time (up to 20 years).

After medical, otological and dental analysis, bite correcting treatment consisted of selective grinding, temporary splints or dental prostheses, and the patients were observed for from three months to over two years. Complete absence of headache or considerable improvement after the treatment was found in 83 per cent of the patients, whereas 11 per cent showed no improvement. The duration of the headache prior to treatment seemed to bear no significant relation to the result of the treatment.

This type of headache is classified in the group in which overloading is present, provoked by disturbances in the masticatory musculature; an adequate treatment involves an unloading within the stomatognathic system.

Oral symptoms of epileptic patients

(Semiótica oral del epileptoide)

J. Beltrán Codina. *An. españ. odontostomat.*
15:91-105 Feb. 1956

If all epileptic and epileptiform patients are considered as a whole, their oral symptoms can be studied under two headings:

1. Constitutional anomalies include excessive volume of maxilla and mandible, especially the latter; pronounced and sharp gonion; hypoplasia of dental enamel; high palate in more than one third of patients with genuine epilepsy; large square teeth, dark yellow in color; multiple caries; periodontal disease; macroglossia; ptialism; painful ulcers of oral mucosa, with bleeding and fetor.

2. Acquired symptoms include those caused by the disease itself or those produced by its medication. Those caused by the disease are represented by scars of the face, lips and espe-

cially the tongue (caused by biting during convulsions); fractures of the maxilla, particularly of the alveolar bone and teeth; a high percentage of partially edentulous states due to multiple caries and periodontal disease, and cuspal abrasion produced by bruxism.

To control epileptic seizures, certain anticonvulsants, such as barbiturates, their derivatives or chemically similar compounds, are given. Symptoms produced by medication differ according to the drug. These symptoms are dark gray, diffuse ulcerations of the mucosa in the mouth and throat, with herpetic lesions extending to the lips and cheeks; fetor and enlargement of the glands. Especially important in patients taking diphenylhydantoin sodium is an enormous gingival hyperplasia which requires massage, correction of occlusion, suppression of local irritants, mouth hygiene, attention to decay, and, in extreme instances, surgical excision.

Peculiarities of dental morphology

(Curiosidades de morfología dentária)

C. Adão. *J. estomat., Lisbon* 1:18-20
Oct.-Nov. 1955

The author has performed more than 100,000 extractions in his dental practice of about 20 years and has had occasion to observe some rare anomalies of dental morphology. The abnormal specimens include anomalies of form, implantation, size and number of teeth or of roots and others. Special reference is made to (1) a right upper central incisor of enormous size and (2) either coalescent or supernumerary teeth.

1. A 16 year old girl requested the extraction of an enormous upper incisor which was extremely carious and caused a terrific toothache. The tooth occupied the space of the central and lateral incisors in the dental arch. It was easily extracted. One root of the tooth had a cartilaginous prolongation which perforated the nasal floor and produced a bucconasal fistula. This prolongation was removed with the root during the extraction and the fistula later closed spontaneously. The tooth seemed to have been formed from the fusion of three or four molars with only one common enamel and with roots fused into one. It measured 22 by 20 by 15 mm. The patient

was observed again 13 years after the tooth had been extracted. The lateral incisor had erupted into the large space left by the monstrous tooth and in so doing had turned 45 degrees on its longitudinal axis. Its lingual surface was parallel to the sagittal plane. The aspect of the patient's mouth was better than it had been before the extraction of the tooth. The patient was satisfied and did not want treatment to improve her teeth.

2. One of the specimens of a coalescent tooth was a second molar in a patient who, because of toothache and caries, requested extraction of the tooth. The third molar had not as yet erupted. When the second molar was extracted, both teeth were extracted together. The second molar had two roots, the third molar, one. The three roots were cemented in one, from the middle of the root downward. Fusion of the cementum of the roots was complete, with formation of one root only.

The other specimen of a coalescent tooth was that of an upper central incisor which was fused with a small supernumerary tooth. The coalescence involved the tooth from its lingual surface down two thirds of the root, after which the roots were independent of each other.

Contact dermatitis from platinum and related metals

Charles Sheard. *A.M.A. Arch. Dermat.*
71:357-360 March 1955

Instances of contact dermatitis caused by metallic platinum have been considered so rare as to be nonexistent. Reports by Hunter, Milton and Perry (1945), Roberts (1951), and Marshall (1952), however, show that the complex salts of platinum produce symptoms of asthma and contact dermatitis. The case reported shows that the metallic form of platinum and related metals also may produce contact dermatitis. At least, platinum sensitivity is not to be dismissed as an impossibility.

Metallic platinum is used in jewelry, photography and dentistry and in the chemical and electrical industries. Metals of the platinum series include ruthenium, rhodium, palladium, osmium, iridium, and platinum. Most jewelry made of

platinum is either almost entirely pure platinum or 90 per cent platinum and 10 per cent iridium. Some rings are made of palladium and iridium, and some are plated with rhodium.

A 35 year old housewife came to the office with a contact dermatitis of the right fourth finger as well as the left fourth finger and the adjacent left third and fifth fingers. She had worn platinum rings at these sites.

Discussion of the question of dermatitis from the metals of the platinum series with jewelers and platinum refiners and dentists indicates that those experienced in the use of platinum, although unaware of expressed dermatologic views, have seen instances of contact dermatitis produced by platinum. It would appear that platinum is a potent allergen in a complex salt and is also an allergen in the metallic form. Reactions to dental appliances and perhaps other hitherto obscure dermatitides, may be explained on this basis.

Experimental researches on the effect of monilia (*Candida albicans*) on lymphopoiesis in mice (Investigaciones experimentales acerca del efecto de la monilia (*Candida albicans*) sobre la linfopoyesis del ratón)

J. Bichel and A. Stenderup. *Fol.clin.internac.*,
Barcelona 5:273-276 July 1955

Essential "lymphocytophthisis" (alymphocytosis) is a fatal syndrome of acute diarrhea, diffuse moniliasis and severe lymphopenia which is observed in infants and very young children but rarely in adults. Six cases in infants have been reported in the literature. Five of the six patients had had antibiotic therapy in the early or late stages of the disease. Moniliasis of the buccal structures and diffuse moniliasis were observed in almost all the patients. Autopsy showed diffuse atrophy of all the lymphoid tissue in the body.

Experiments were made on mice to investigate whether infection caused by *Candida albicans*, alone or under the effect of antibiotic treatment, has an inhibitory effect on lymphopoiesis. The animals were placed in different groups according to whether they were inoculated intraperi-

toneally or orally with *C. albicans* and whether they received antibiotics concurrently. The strain of *C. albicans* used in the experiment was isolated from the mouth of a patient with secondary moniliasis, and, as previously proved, it was pathogenic for rabbits. The changes observed in the blood of the living animals during the course of the experiment and the results of the histologic examination of lymphoid tissue structures removed at autopsy were the same in the animals of all the groups.

The experimental infection with *C. albicans* produced pronounced lymphopenia, with a 50 per cent decrease in the number of lymphocytes, in more than half the mice in all groups. Neither diffuse atrophy of the lymphoid tissue structures (spleen, lymph nodes and Peyer's patches) nor alymphocytosis was observed.

▼ Psychology

Hypnodontics and relation to Bell's palsy: a case report

G. Peter Cook. *J.Am.Soc.Psychosomat.Den.*
3:11-12 April 1956

Examination of a 27 year old woman revealed a paralysis of the facial muscles on the right side with unilateral inability to move the lips, and loss of sensation from above the eye to the cheek extending down to the chin. The condition had existed for nine years; it was diagnosed as Bell's palsy.

On July 11, 1955, the patient was placed under hypnosis and immediately all sensation was restored to the right side of the face. Her face was pricked with an instrument, whereupon she jumped. A 50 per cent movement of the lips on the right side was obtained concurrently. The patient at the present time is cured of Bell's palsy, with no paralysis or numbness on the right side of the face. She has continued gradually to increase the movements of her lips until normal results were obtained.

No evidence could be found that the condition was based on emotion.

▼ Anatomy

Progress review: anatomy

Melvin L. Moss. *New York D.J.* 22:76-77
Feb. 1956

Thirteen of the 446 papers presented at the annual meeting of the American Association of Anatomists held in April 1955 dealt with specific or closely related dental subjects. These 13 papers are summarized.

The production of palatal and facial anomalies in rats was accomplished by subjecting the pregnant mothers to a pteroylglutamic acid deficiency; the deformity underlying the external anomalies resulted from a failure in relative growth of the lateral palatine processes.

Endocrinology finds dental application in a paper reporting on the control of the salivary glands. The zymogenic (enzyme producing) cells of the parotid and submandibular glands of the rat were more dependent on hypophyseal hormones than were the mucus producing cells of the sublingual gland.

Two amino acids (methionine and cystine) which contained S³⁵ were fed the growing rat. Metabolic differences were demonstrated between bone and dentin, on the one hand, and enamel on the other. Whereas the former two tissues apparently metabolized both of the amino acids, enamel was radioactive only after the administration of methionine.

In a study of the dentin of tryptophane deficient rats, examined histochemically and by electron microscopy, disturbances of the ground substances were observed.

In an embryologic study of the development of the foliate papillae of the human fetal tongue it was found that the taste buds appear about the fifteenth week of development.

In a study of the emergence of the permanent first molars in the Macaque monkey, some degree of positive correlation was found between the relatively early emergence of these teeth and heavier birth weight, greater body length and weight at one and one-half years, and prolonged gestation time.

A study of the relation of the roots of the lower molar teeth to the mylohyoid line showed that those teeth whose roots extended below this line were more likely to produce Ludwig's angina if periapical infection occurred.

Growth studies of the human prenatal head yielded a simple quantitative expression for the great changes in relative proportion which accompany absolute increases in size during the growth of the skull.

A study of facial and cranial asymmetry through experimental surgery revealed that the changes produced in the temporomandibular joint by the surgery were similar to those caused by bulbar polio.

Tissue culture of enamel epithelium showed that the growth characteristics of the inner and outer enamel epithelium and of the enamel pulp were mutually exclusive.



Chemistry

Quantitative determination of fluoride in phosphate-bearing waters

Barbara G. Lang, Omer C. Sieverding and Earle K. Borman. *Am.J.Pub.Health* 46:860-864 July 1956

For nearly 15 years the Connecticut State Department of Health has been examining samples from all public water supplies for natural fluoride content, and samples have been routinely examined from supplies to which fluoride is added as a preventive for dental caries.

The accuracy of the Lamar method of fluoride determination was found to be adversely affected as soon as the phosphate content of the water exceeds 0.4 ppm in the original sample; the phosphate interference is still apparent after a single distillation when phosphate exceeds 0.5 ppm.

A method for determination of fluoride in the range of 0.2 to 2.0 ppm, in the presence of phosphate concentrations commonly encountered in public water supplies, has been developed in Connecticut. Advantages over the Lamar method are

(1) the development of maximum color is rapid and not affected by variations in room temperatures, and (2) phosphate interference is not apparent with PO_4 concentrations below 2 ppm.

The Connecticut method depends on the addition of sufficient thorium nitrate to provide an excess after reaction with fluoride.



Bacteriology

Bacterial flora of the mouth

Valerie Hurst. *J.Periodont.* 27:87-91 April 1956

Although the prevailing view is that bacteria play no more than a secondary, or indirect, role in periodontal disease, bacteria must not be dismissed from consideration entirely. Most periodontists agree that if bacteria were not present in the periodontal pocket, the clinical course of the disease might be shorter.

The role of bacteria in periodontal disease is confused by the fact that so many different bacteria are found in the periodontal pocket. The task of sorting them out is almost overwhelming. A logical approach may be to consider first the bacteria present in a baby's mouth.

A baby's mouth usually is sterile at birth, but within the first 24 hours bacteria begin to appear. The newborn baby's mouth is selective, permitting only certain kinds of bacteria to multiply. They are the bacteria commonly found in the mouths of healthy adults, that is, *Streptococci viridans*, staphylococci, diphtheroids, Neisseria, hemophili, Veillonella and so forth. Other bacteria, common to the air and soil, are eliminated quickly. This high degree of selectivity continues in later life. It implies that bacteria which cause oral disease must be adapted to the oral environment, and must be able to live in harmony with the normal flora.

The strains of bacteria which become established in the baby's mouth just after birth tend to persist, and are not replaced readily by other strains even of the same species.

A baby does not necessarily acquire the bacterial flora present in other family members, even in an identical twin. The individuality and permanency of a baby's oral flora may be of fundamental importance, for it may determine the bacteria which can become established in the mouth in later life.

Although textbooks state that fusiforms do not appear in the mouth until tooth eruption, fusiforms have been cultivated in the laboratory of the University of California College of Dentistry from the mouths of many babies under two months old.

Methods of subdividing the fusiforms into types have been devised by Jackins (1951) and Omata (1955). In a few years perhaps it will be possible to distinguish the fusiforms of the healthy mouth from those present in mouths with periodontal disease.

The role of specific bacteria in periodontal disease is difficult to evaluate, because a variety of bacteria may participate in the infection. Those in active participation must be distinguished from those which are incidental. MacDonald and others report progress in this work.

Studies of bacteria in both the normal and diseased mouth, the interrelations of these bacteria, and the substances they produce, are all necessary to an understanding of periodontal disease.

Tube sterilizing technic

V. S. Hinds. *Iowa D.J.* 41:307-308 Dec. 1955

The object of the reported study was to test sterilization technics in boiling water and in an autoclave. Previously sterilized instruments were contaminated by being dipped into cultures. The instruments were then subjected to various sterilizing technics, and were used to inoculate an appropriate sterile medium. The media were taken to the Department of Bacteriology of the State University of Iowa for culturing and study.

Sixteen no. 1 Woodson plastic instruments were used in the tests, with 12 sterilization tubes and cultures of *Micrococcus aureus*, *Escherichia coli*, *Bacillus cereus* and *Clostridia sporogenes*.

The control group received no treatment and the instruments were allowed to stand in the

sterile tube for a length of time equal to the autoclaving cycle. The second group of contaminated instruments was placed in autoclaved tubes, and taken to the clinic sterilization room and subjected to the routine procedure of immersion in boiling water for 20 minutes. The third group, after contamination, was placed in individual sterile tubes, the ends of which were covered with sterile sponges. The tubes were then placed in an electric autoclave and subjected to the routine automatic cycle of approximately 23 minutes. The fourth group after contamination was not placed in tubes but directly exposed to the steam in an autoclave tray. The 16 tubes of inoculated media were incubated for seven days at 37 °C. A report of the growth of organisms is summarized tabularly.

All the cultures save *Micrococcus aureus* grew in the control group. Sporeforming bacteria were not killed by the boiling water technic, as evidenced by the growth of *Bacillus cereus* and *Clostridia sporogenes* in group two. Both of the autoclaving technics were effective in killing both the sporeforming and nonsporeforming bacteria.

Studies on actinomycetes isolated from the actinomycosis of human jaws

(Gakubu hosen-kin sho kara bunrisha
actinomycetes ni tsuite)

Nobuo Tokiwa. *J. Japan Stomat. Soc.* 23:35-43
March 1956

Even though *Actinomyces israeli* is generally regarded as the only pathogenic organism of the chronic specific infectious disease actinomycosis, the identity of many of the strains recovered from human actinomycosis is unknown. Based on typical clinical appearance of actinomycosis, 39 instances were selected as actinomycosis of the jaw from a number of similar chronic infectious diseases during three years. Specimens were taken from the outside of the mouth just after the first incision, avoiding the contamination from oral flora. So-called "sulful granule" was not always found in the pus from atypical cases, but actinomycetic filamentous organisms were found on direct smear preparates. Based on the results of further morphologic, biochemical and serologic

studies on 48 strains of pure culture, the organisms were compared with the description in *Bergey's Manual of Determinative Bacteriology* and classified into three groups: group A, genus *Actinomyces* consisting of 8 *A. bovis* and 23 *A. israeli*; group B, actinomyces-like organisms consisting of 5 aerobic, not *Nocardia*, 5 anaerobic and 5 anaerobic and gas producing strains, and group C, *Corynebacterium* consisting of 2 anaerobic and 2 aerobic strains. Reduction of neutral red by the gas producing actinomycetes differentiated them from *Actinobacterium cellulitis* [sic.] Linhard. The existence of this type of organism as well as atypical actinomycetes should be mentioned in a discussion of *A. israeli* or *A. bovis* as etiologic factors. At the same time actinomycotic diseases attributed by isolation to the atypical actinomycetes should be called pseudo-actinomycosis, according to Prévot's proposal that there are three categories of the infection; actinomycosis by *Actinomyces*, pseudo-actinomycosis (or corynebacteriosis) by *Corynebacterium*, and rami-bacteriosis by *Ramibacterium*.

Biochemistry

Study on calcium in saliva

Kenzaburo Tsuchiya, Masao Nishimura
and Naofusa Sato.
Shikwa Gakuho 56:12-14 April 1956

The saliva of 62 healthy men was examined. The findings were as follows:

1. The amount of salivary calcium was: $M = 5.81 \text{ mg./dl.} \pm 0.099$. $\sigma = 1.16 \text{ mg./dl.} \pm 0.07$.
2. The coefficient of interrelation between the amount of calcium in the serum and the amount of mixed calivary calcium was: $\gamma = 0.32435 \pm 0.0754$.
3. No correlation was found in the amount of mixed salivary calcium, dental decay or dental calculus.
4. The daily variation in mixed saliva is great.
5. As to the variation in the amount of mixed salivary calcium before and after meals, the ratio

of dispersion was $F = 4.53$, the index of danger was below 5 per cent, and a significant difference was observed.

6. A relation probably exists between the secretion and the amount of calcium.

7. As to the amount of pure salivary calcium and the amount of mixed salivary calcium, the ratio of dispersion was $F = 8.1$, the index of danger was below 5 per cent and a disparity was observed.

Current knowledge of blood clotting

Harvey W. Kaetz. *J. Connecticut D.A.* 30:5-8
April 1956

Cessation of bleeding is a function of two separate though related entities—the small blood vessels and the hemostatic process. The physical and chemical changes that result in the formation of a blood clot are still not completely understood. It is now recognized that blood coagulation occurs in three steps. The first of these is the activation of thromboplastin, the second is the conversion of prothrombin to thrombin, and the third is the formation of fibrin from fibrinogen.

Clotting is a dynamic process. Substances concerned with clotting in the circulating blood are in delicate equilibrium. The circulating blood remains fluid until a break in the vascular continuity occurs. This triggers a reaction that does not stop in the normal individual until a clot is formed. The factors or substances that participate in forming a clot are present in platelets, plasma and serum.

Platelets play a key role. They supply an agent necessary for the activation of thromboplastin from inactive plasma precursors. Intact platelets are needed for clot retraction once the clot is formed. Plasma supplies most of the other necessary components.

In the first phase of clotting, thromboplastin is elaborated. In the second phase, prothrombin is converted to thrombin, possibly by a mechanism involving thromboplastin, calcium and other plasma proteins which are called accelerators. The third phase, the formation of fibrin from fibrinogen, involves a reaction which is enzymatic in nature and occurs in the presence of thrombin.

If a blood clot is watched in a glass test tube, the blood seems to remain fluid for several minutes, and then in a short space of time to become solid. Coagulation begins while the blood is fluid with the agglutination of platelets. There then occurs the interaction of the platelet thromboplastic factor and the plasma proteins, with the elaboration of small amounts of thromboplastin. A small amount of thrombin then forms from prothrombin, calcium and thromboplastin. This marks the end of the fluid or preliminary phase. The short space of time required for the blood to become solid represents that time required for the activation of the accelerator system until the final formation of the fibrin clot.

If the process were to go on unchecked, harmful propagation of the clot would ensue. The reaction is brought to a halt, however, by a number of braking mechanisms.

▼ Miscellaneous

Treatment of diseased teeth according to Yugoslavian and Croatian folk medicine (Über Zahnerkrankungen in der jugoslawischen und kroatischen Volksmedizin)

Leander Brozović, Yugoslavia.
Zahnärztl. Mitt. 44:136-138 Feb. 15, 1956

Unlicensed dental and medical practitioners (there still are many in all districts of Yugoslavia) "treat" and "cure" diseased teeth by odd procedures.

Toothaches vanish immediately, so they say, when a hot brick touches the swollen cheek, or when the patient's face is pressed against a heated stove.

A carious tooth will no longer hurt when a mixture of garlic, buttermilk, salt and ashes is applied, or the stump of a cigar (smoked by a beautiful girl) is inserted into the cavity.

All oral swellings will recede when bloodsucking leeches are applied, or when a compound of gunpowder and saliva is kept in the mouth for at least one hour. Far quicker, however, can the "cure" be obtained when the gall of a red billy

goat, mixed with honey, vinegar and paprika, is eaten; the patient immediately forgets all his pains, and the swelling will diminish overnight.

As a general remedy for all tooth afflictions, the following panacea is highly recommended: a dried black snail (ground to powder), three asparagus roots (dug on the seventh day of September), the juice of a horseradish, black pepper, unripe poppy seeds, roots and leaves of stinging nettles and brandy, mixed in an earthen pot. This remedy should be either taken immediately, or applied on the arteries of the hand (on the opposite side from which the pains occur). If necessary, this procedure should be repeated but not more than three times.

Unpleasant mouth odor can be chased away if the patient rinses his mouth ten times with water in which a hornet's nest has been soaked. In Herzegovina, however, the preferred remedy consists of a pulverized red (copper or rusty) coin which is mixed with nutmeal, cloves and slivovitz (Yugoslavian brandy). To be effective, this mixture has to be taken in a single gulp.

Scorbutic and otherwise loose teeth will reattach themselves when a mixture of red wine, leaves and roots of blackberries, vinegar and violet buds is kept in the mouth for at least half a day.

Periodontal diseases can be "cured" with a drink in which a crystal of blue vitriol (not larger than a bean) is dissolved in red wine.

It is said, however, that far more effective than all these "medical" remedies is cure by black magic.

All diseased teeth will be "as good as new" when the patient requests from his neighbor "for God's sake" a horseshoe nail, and writes with this nail in the dust of a fresh grave, "My teeth should not hurt me any more," makes the sign of the cross three times, and buries the nail in the ground after wiping out his writing.

If a person visits the church and keeps a pebble in his mouth during the service, he will never be afflicted with a dental disease.

According to most Yugoslavian folk medicine rules, the best way to stay free from all dental diseases is to consume steadily alcohol in any form until the body is completely saturated, because no harm can overcome a strong person who is able to imbibe strong drinks.

Orthodontics and pedodontics



Orthodontics

Orthodontic treatment of adults in certain indicated instances

(Die kieferorthopädische Behandlung
Erwachsener und ihre Lösung in
Einzelfällen)

H. Ertinger. *Fortschr.Kieferorthop.* 16:284-290
Jan. 1956

In dental literature, the question of whether orthodontic treatment may be extended to adults still is being debated. No consensus has been reached as to whether orthodontic treatment of adults should be rejected in principle or is permissible under certain conditions.

tion: "Why not?" It is important, however, to evaluate in each adult whether such a treatment is contraindicated for medical or other reasons and whether orthodontic therapy can benefit the patient. Limiting the optimal age to the first 13 years of life is arbitrary. Such a limitation can only be based on irrelevant chronologic data and probably on red tape which usually accompanies all actions of the authorities connected with socialized medicine. This limitation is not justified either by physiologic findings or by established dental or medical evidence.

In principle, orthodontic treatment of adults does not differ from that of children. No miraculous methods or appliances are used. In all fields of science, doctrinairism is out of place.

The decisive factors which indicate whether orthodontic treatment can be or should be applied are (1) the patient's physiologic oral condition, and (2) his willingness to undergo what is inevitably an unpleasant experience, the orthodontic treatment.

The prerequisites of all appliances utilized in orthodontic treatment are that they do not disfigure the patient's facial appearance, that they do not cause disturbances in the masticatory or speech functions, and that they are easy to clean.

Figure 1 (Case 1) Left: Before treatment. Right: After treatment



In Germany, and in many other European countries, public or semi-public (socialized) health insurances have influenced the solution of this problem by a statement that after the thirteenth year the child becomes an adult, and no fee will be paid for any orthodontic treatment of adults.

Faced with the question as to whether adults should receive orthodontic treatment, the majority of orthodontists answered with another ques-

When several natural teeth are missing, those appliances can be fitted with artificial teeth. A combination of orthodontic apparatus, prosthesis and an extension plate is the result.

Four instances of orthodontic treatment of adults are presented.

Case 1 The patient, a 17½ year old girl, had an unerupted upper right central incisor in a dentition of average quality. A previously existing gap

between the right lateral incisor and the cuspid had closed normally. Roentgenograms of the upper jaw revealed unusual closeness of the left central and lateral incisor. At first, it was believed that it would be possible to correct this condition simply through the use of an extension band. After surgical opening, however, a dens in dente was observed within the pulp chamber of the unerupted tooth. After the mass was removed, the anterior teeth were brought into anatomically correct position with a palatal band connected to an arch wire appliance. The dental defect then was corrected by insertion of a bridge.

Case 2 The patient, a 19 year old girl, had upper teeth which were too close together. The

pearance and speech. In this instance also, the appliance consisted of a palatal band connected to arch wires. A retention plate was constructed by improving the customary method by fusing both halves of the plate to a single unit.

The entire treatment was completed within one and one-half years. This period of time was no longer than that required for similar orthodontic treatment of children.

Case 3 The patient, a 32 year old woman, presented a dental condition in which both upper central incisors were loose. The therapy was simple. After insertion of a vestibular band connected to arch wires, an anterior overbite was obtained by utilization of a palatal apparatus similar to

Figure 2 (Case 2) Left: Before treatment. Right: After treatment

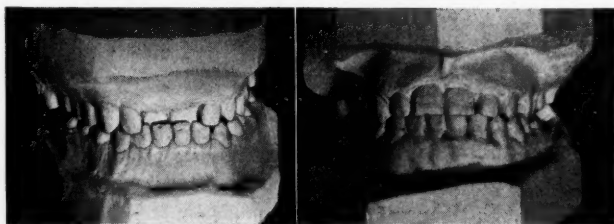
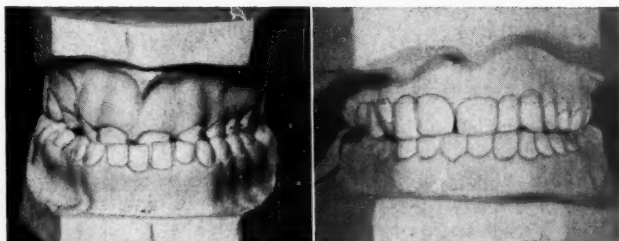


Figure 3 (Case 3) Left: Before treatment. Right: After treatment

palate was highly arched. The raphe palati bent strongly to the right. The patient's underdeveloped facial midsection corresponded to her underdeveloped upper jaw. All teeth were present in the mandible, but the abnormal upper jaw and prognathism of the lower jaw produced a deep, reversed overbite. The orthodontic treatment consisted in making the defective dentition capable of receiving and holding a partial denture, and in improving the patient's facial ap-

pearance and speech. In just under a year, a normal condition was achieved.

Case 4 The patient, a 50 year old man, had received orthodontic treatment 20 years previously because of a partial prognathism. Angle's appliances had been used. A minor orthodontic correction was necessary and was performed successfully.

In all four cases reported (selected from more

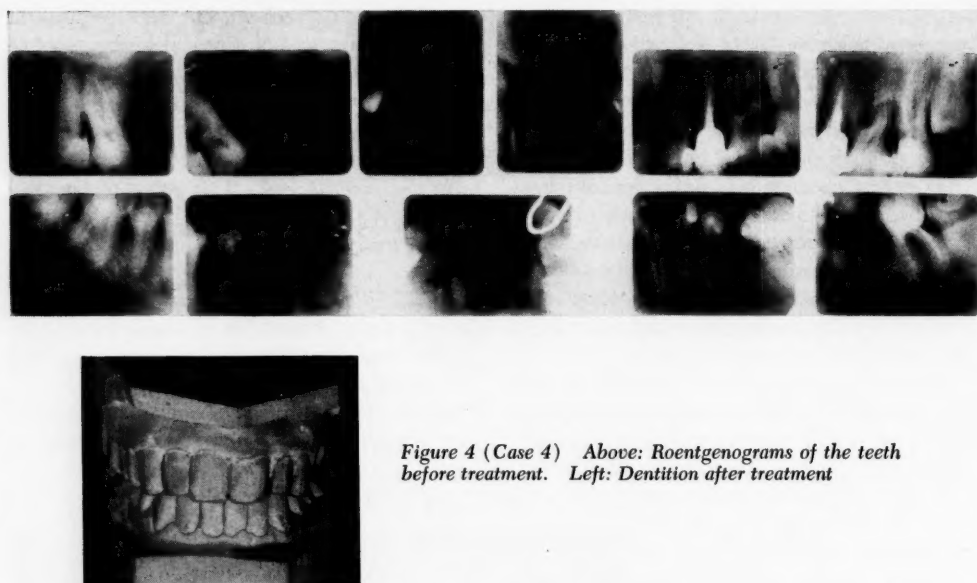


Figure 4 (Case 4) Above: Roentgenograms of the teeth before treatment. Left: Dentition after treatment

than 100 similar instances), it has been established that no harm will be caused by orthodontic treatment of adult patients.

Carol's gnathostat-symmetrograph
(Gnatostato-simetrografo Carol)

Juan Carol-Murillo. *Rev.españ.estomat.*
4:111-120 March-April 1956

Many orthodontists have discontinued the use of gnathostatic techniques because gnathostatic models did not give the desired orthodontic diagnoses, and the technic of obtaining gnathostatic models, whether on the patient or when preparing the base of the models, is too complicated.

Notwithstanding that, gnathostatic models are the only ones that allow the orthodontist to record where treatment began, and verify the progress accomplished at the end of treatment or during treatment.

The gnathostat-symmetrograph's construction is such that it can record and evaluate the asymmetry of the human head. In it the upper model is mounted using either the sagittal plane through the raphe, or the subnasal-intertragus (middle point between both tragi).

When the irregularity of the raphe or the facial asymmetries do not permit exact placement, a comparative study of both planes allows a more precise orientation.

With the symmetrograph it is possible to establish the sagittal and transverse planes necessary when studying the dental arches. By means of a revolving platen the true sagittal plane of the mandible can be drawn after it has been established by the correct technic.

Retention of expansion after orthopedic treatment of cleft palate (Retensjon etter kjeveortopedisk behandling av ganespaltepasienter)

Arne Bøhn. *Norske Tannlaegeforen.Tid.*
65:440-444 Nov. 1955

It has been shown that the compressed maxillary arch in patients with total cleft of the palate and alveolar process may be expanded rather simply until the segments form parts of a normal arch. Usually such expansion in young patients does not increase the size of the cleft since the edges of the segments will develop concurrently with the expansion. As a result of such expansion the

alveolar process becomes more normal, vertical height may be adjusted, and space is created for missing teeth in the region of the cleft. After expansion the new position must be maintained to prevent the fragments of the maxilla from moving back because of muscle tension or formation of scar tissue.

In some instances the position can be successfully maintained through use of removable appliances, particularly where obturators are indicated.

In most instances, however, it is preferable to establish a fixed position across the cleft of the alveolar process. In young children this may be accomplished by means of two bands cemented on a tooth on either side of the defect. The bands are connected by a wire resting in tubes attached to the bands. The wire is attached to one of the tubes and a spiral spring around the wire between the tubes exerts a few grams of pressure in each direction.

After the age of 20 the position should be maintained by means of a fixed bridge. To meet the requirements of strength and permanency, twice the number of abutments must be included as would be required normally. As a general rule two abutment teeth with normally developed roots should be used on either side of the defect. Full cast crowns or combination crowns are recommended for the abutments. Care should be used in soldering the bridge to ensure stability and permanency.

A new diagrammatic method in orthodontics (Eine neue orthodontische Diagrammmethode)

Orhan Okyay, Istanbul, Turkey.

Deut.zahnärztl.Zschr. 10:904-908 June 15, 1955

In searching for a method to determine the relation between dental arch and morphologic measurement, different authors have considered different aspects: (1) corporeal, physical and occlusal characteristics (Turner, Thompson); (2) functional forces (Sigaud, Chaillou, MacAuliffe); (3) effects of the three embryonic tissues in the development of the organism (Sheldon) and (4) similarity of the dental and facial arches (Williams, Villain). An often neglected but important phase of the functional analysis is the evalua-

tion of the temporomandibular joints. In most instances, however, roentgenograms of these joints, when taken with the mouth open, are of little value. It may be possible to deduce certain characteristics of functional optimal occlusion, especially in regard to occlusal stress.

Among the recently published diagrammatic systems, the method utilizing the measurements of the zygomatic arch and the auriculoprostion space (Izard) and the method analyzing and comparing the anthropologic and orthodontic findings (Baz) are the most valuable ones.

The dental arch should not be regarded as a static unit but as a dynamic element (Herder, Hourtigué, Johnson, Stanton). The shape and size of the dental arches can be determined by measuring and recording graphically their dimensions (Carrea, Champion, Williams). By collating all these principles, it is possible to form the concept for a new diagrammatic method which can be applied as: (1) a geometric technic; (2) an indexing technic, and (3) a geometric-indexing technic.

The geometric technic can be used in: (1) diagrams of the upper arch in which either the width of the anterior teeth (Benagiano, Bonwill, Gailard, Gerber, Gysi, Hawley, Herbst) or the width of all upper teeth (de Corisé, Siffre) is measured and recorded; (2) diagrams of the lower arch, following the same principles (Körbitz), and (3) all diagrams in which specially designed recording instruments are utilized (Muzj, Swed).

The indexing technic can be used in: (1) diagrams in which horizontal indications such as either the distance between the cuspids (Kantorowicz) or the distance between the bicuspid and the molars (Linder-Hart, Pont) are the deciding factors, and (2) diagrams in which sagittal conditions such as either the anterior height of the arch (Kantorowicz, Korkhaus) or the posterior height of the arch (Okyay) are the deciding factors.

The geometric-indexing technic combines the principles of both technics but registers especially the distance between incisors and molars in both arches (Okyay).

In the "model analysis," the diagrams are designed on glass or celluloid (plastics). In normal arches, the measuring points correspond to these of the model. All deviations in abnormal arches

can be recognized clearly and easily. In clinical examinations, dental arches are compared with a standardized "normal" arch with the "arcadometer," an instrument made with 0.7 mm. orthodontic steel wire, according to the diagrams and corresponding to different arch sizes. The main feature of this apparatus is its adaptability to both arches.

Orthodontic facts

W. R. Alstadt. *Bul. Alabama D.A.* 40:10-12
July 1956

There are four basic reasons for orthodontic treatment: (1) to improve esthetics; (2) to improve the masticatory apparatus; (3) to prolong the retention of teeth, and (4) to assist in the correction of speech defects.

It is unfortunate that some dentists do not feel the necessity of restoring deciduous carious teeth. If these teeth are to be present in the mouth for a few months or longer, they should be restored to reduce the possibilities of systemic disorders, to assist in mastication, and to assist in maintaining the normal space in the dental arches for growth and development.

Some principal causes of malocclusion are the following: habits which include prolonged thumb-sucking or finger sucking; improper pillow habits; improper posture habits; enlarged tonsils and adenoids; hereditary factors; endocrine disturbances; premature loss of deciduous teeth; prolonged retention of deciduous teeth, and accidents. Whenever a deciduous tooth is lost earlier than normal, a space maintainer should be used to avoid the collapse of the dental arch.

Only in a small percentage of instances does "nature correct the dental abnormality."

The wearing of orthodontic appliances does not cause caries; on the contrary, the orthodontic patient is less apt to have progressive caries than is the nonorthodontic patient.

About 2 to 2½ years of active treatment are required for the average orthodontic patient, with posttreatment observation varying between 1 and 3 years.

The improved modified edgewise arch technique

Alexander Sved. *Am.J.Orthodont.* 42:409-420
June 1956

Some orthodontists treat patients with appliances which are either inefficient or too violent in their action. As a result the patients are subjected to unduly prolonged or too severe treatments. The continued use of orthodontic treatment with certain types of brackets and dimensions of arch wires should be re-studied. The original Angle bracket is too drastic in its action and subjects the supporting tissues to undue strain. The original edgewise arch bracket delivers excessive forces to the teeth.

The modified edgewise arch appliance, introduced by the author in 1937, is universal, gentle and accurate in action. It is positive but more delicate in its action than any other mechanism used in orthodontics.

Whereas the modified bracket is devoid of any ability to deliver a torque to the teeth, the correction of certain malpositions of the teeth requires the application of a torque. This requires an auxiliary attachment to the modified bracket—a "closed tube" attachment, which is nothing more than a small section of a round tube, with a lumen large enough to receive easily an 0.016 inch wire (sliding fit). The closed tube efficiently delivers a torque to rotated teeth. The force delivered to the teeth is only 7.5 per cent of the force delivered by the regular edgewise appliance with a 0.022 by 0.028 inch arch wire. The closed tube auxiliary attachment to the modified edgewise arch appliance is one of the most efficient appliances in use today. It can be used to treat any kind of malocclusion in which orthodontic treatment can be employed.

Construction of the modified edgewise arch appliance with the closed tube auxiliary attachment is explained.

A child should not be subjected to the violent action of an edgewise arch appliance when the same results could be obtained by a modified form of that mechanism, using only 7.5 per cent of the force originally applied.

Armamentarium



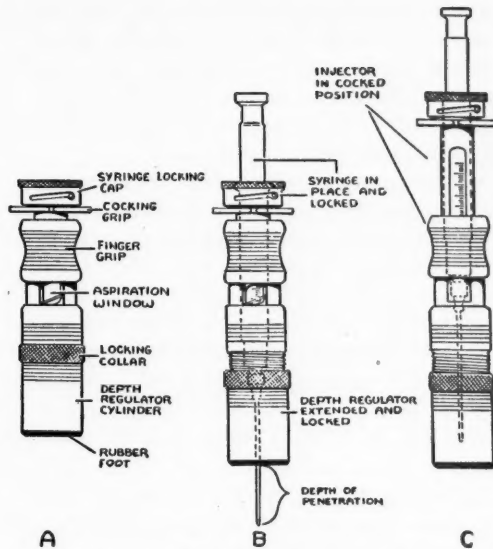
Instruments

A new injector designed to minimize pain and apprehension of parenteral therapy

Frank H. J. Figge and Vernon M. Gelhaus.
J.A.M.A. 160:1308-1310 April 14, 1956

A great many patients of all ages dislike or avoid injections. A new injecting instrument, the Presto injector, appears to be one of the most satisfactory injection devices to appear thus far. The Presto injector will permit doctors, nurses and patients to make subcutaneous or intramuscular injections in a relatively painless manner. The main factors that minimize the pain and apprehension, in order of importance, are the high velocity of the penetrating needle, concealment of the needle and most of the syringe, and the automatic trigger. The Presto injector is small, light in weight and easy to carry from place to place. Since it is activated by springs, it is not dependent on electric current and may be used anywhere.

The device is a series of metal cylinders for holding and very rapidly projecting a syringe and needle (see illustration). When the instrument is cocked and ready for application, the needle is retracted and concealed in a depth-regulator cylinder that has been adjusted and locked in position to regulate the depth of the injection. The upper part of the cylinder houses and holds the syringe, which is locked into position by turning the syringe locking cap clockwise. The upper part of the device also has a short, thick cylinder with finger grooves. This holding cylinder also conceals the spring mechanism and activates the automatic trigger device. Just below the finger-grip cylinder is an aspiration window



A: Before introduction of syringe. B: After inserting needle and syringe, depth regulator adjusted. C: Needle hidden by cocking instrument

that makes it possible to determine whether the tip of the needle is in a vein before any of the drug is injected.

To use this instrument, a sterile needle and syringe are assembled and filled in the usual manner. The injector is held in two fingers so that it hangs vertically. The syringe is also held vertically and introduced into the injector. The locking collar is turned counterclockwise and the syringe flange oriented so that it matches and slips into the locking collar. It is locked in position by turning the cap clockwise. The needle projects from the depth-regulating sleeve, which may be adjusted by rotating the extension to give the desired needle protrusion. After the needle depth has been adjusted, the locking ring is tightened. The instrument is cocked and the needle retracted by holding each end and pulling the cylinders apart until the trigger engages. The needle is then completely hidden and the instrument is ready to apply to the patient.

The skin is scrubbed on the selected injection site with alcohol, and the rubber foot is placed lightly against the skin. Without hesitation the pressure is increased until the automatic trigger

releases the syringe holder. A spring pushes the needle and syringe straight forward. The needle velocity is about 1 cm. per 0.01 second. The time necessary for the needle to penetrate the superficial layer of pain fibers in the dermis is thus less than 0.003 seconds.

The responses of 50 normal human subjects to each of five types of injection procedures were recorded. Forty subjects reported no sensation when the Presto injector was used, 8 reported a slight sensation, and 2 reported a slight sting. Tested with a manual syringe and needle (hidden), 23 reported a slight sting, 5 reported a sting, and 2 reported pain. Tested with a manual syringe and needle (exposed), 22 reported a slight sting, 13 reported a sting, and 5 reported pain.

The major field for use of this instrument will be in persons who require self-injection of drugs in a routine continuous manner.



Equipment

A new iontophoresis apparatus

(Ein neuer Jonophorese-Apparat)

E. Heinrich. *Deut.Zahnärztebl.* 10:74
Jan. 22, 1956

The "Jonosteril," designed and manufactured in Germany but now available in the United States, differs from other iontophoresis apparatuses in that it can be regulated automatically. The advantages of this new apparatus are: (1) the current can be limited to a biologically noninjurious potential; (2) the conduction can be postponed for a better current adjustment in which mutations in the iontophoresis-producing currents will be impossible; (3) the current intensity can be regulated automatically before treatment; (4) the treatment can be terminated by touching the "out" switch; (5) the current is not affected by changes and resistances occurring in the patient's circuit (which prevents exceeding the tolerance

limit), and (6) the apparatus combines a pleasing design with the finest workmanship.

The Jonosteril was tested at the Institute of Hygiene of the University of Cologne, Germany, as to its bactericidal effects on aerobic sporogenic and nonsporogenic bacteria, anaerobic sporogenic bacteria and minute parasitic and saprophytic fungi. Four different sterilizing periods were used (10, 15, 20 and 25 minutes). Sterilizing temperature in all tests was 180° C. (356° F.). Cultures of bacteria were tested in glass tubes and in paper envelopes. Sterilization by iontophoresis killed the bacteria in the test tubes within 20 minutes and those in the paper envelopes within 10 minutes.

The conditions of these tests exceeded those used in normal medical or dental practice; a 20 minute sterilization time at a temperature of 180° C. can be regarded as adequate. The performance of the Jonosteril is fully acceptable.

The apparatus has automatic and reliable temperature regulation, is simple to operate, easy to clean, and is trouble-free in operation.

A cross-shaped orthodontic dioptr

(Ein orthodontisches Visiermesskreuz)

Gottfried Schmuth. *Österr.Zschr.Stomat.*
52:660-661 Dec. 1955

For measuring dental arches, and especially for comparing and evaluating intraoral axes and planes of symmetry, most orthodontists use a simple, transparent rule with a millimeter scale. With such an instrument, however, decisive errors in reading and ascertaining the obtained measurements are unavoidable because it is impossible to observe all measuring points of the model.

Although the recently introduced orthodontic plane tables (Korkhaus, A. M. Schwarz, Siebert) eliminate most of the errors which frequently occur through miscalculation of visual fixation end points, a cross-shaped dioptr in a metal plane must be attached so that all measurements can be read correctly.

These orthodontic plane tables and the dioptr are comparatively inexpensive. When the customary transparent rule is replaced with a thicker

measuring plastic plate, also transparent, further advantages can be obtained. A Plexiglas plate, 10 mm. thick, 10 cm. long and 10 cm. wide, is utilized, on the external surfaces of which a screen, 6 cm. long and 6 cm. wide, is etched. The screen consists of 10 mm. squares. On one side of the measuring plate, longitudinal lines are etched, 2 mm. apart.

A cross-shaped orthodontic diopter scarcely disturbs the view of the orthodontist, at least far less than does the customary millimeter screen. The instrument can be turned easily up to a 90 degree angle, to permit both a transversal and a sagittal measurement. The dioptic screen on one side of the Plexiglas plate is red; the measuring screen on the other side is black. Even differences less than 2 mm. now can be read and evaluated correctly.



Therapeutics

Tetracycline: a new antibiotic for dental infections (Tetraciclina.

Un nuevo antibiotico en las infecciones dentarias)

Homero Dario Bianchi. *An.españ.odontoestomat.* 15:259-261 April 1956

Tetracycline, an antibiotic for the treatment of dental infections, is similar in its action to oxytetracycline. It is prepared synthetically, and is soluble in water and organic fluids.

Tetracycline has been found in the body as long as 18 hours after ingestion, and is eliminated by feces, urine, bile and saliva. This is important in dental infections.

It becomes therapeutically active after ingestion of 500 to 1,000 mg., and is usually given in 250 mg. capsules every six hours. Effects are evident only after the second dose as only a small part of the drug is absorbed by the intestinal wall.

Most patients had no side reactions. Some experienced nausea, mild intestinal discomfort, softened stools, and, in two instances, mild urticaria. Reactions were infrequent because of adequate premedication with vitamins and an

increase of the normal bacterial flora of the gastrointestinal tract.

Tetracycline attacks gram-positive bacteria, and also those that produce putrefaction of the dental pulp.

This new antibiotic is adequate for treating dental infections, not only because it is effective but because it is well accepted and tolerated by ambulatory patients.

Why dentists should write prescriptions

James R. Cameron. *Pennsylvania D.J.* 23:3-5 June 1956

The dentist, like the physician, seeks to prevent disease, alleviate human suffering and prolong human life. The use of various forms of medication is as much a part of the dentist's armamentarium as is the possession of a set of instruments.

Surgery alone and the administration of a sedative or analgesic drug at the time of surgery may not suffice to assure the patient mental and physical comfort during the period of recovery. Prescribing an analgesic or narcotic drug, or an antibiotic agent, or both, for use of the patient at home is part of the professional service a dentist is expected to render. It is a dignified part of dental practice to hand the patient a prescription rather than to advise him to take an aspirin tablet or some other home remedy if he is uncomfortable.

The advent of antibiotic agents has changed dental practice as it has changed the practice of medicine. Many of the acute inflammatory and suppurative processes that occur in and about the mouth can be retarded or eliminated by the judicious use of these agents. Chronic infection of the mouth and jaws, or injuries to the jaws, may interfere with adequate food intake. Supplementary use of various vitamins is essential to maintain the general health of such patients.

Whereas the treatment of systemic disease is primarily a problem of the physician, there are occasions in which care of the oral condition is the major consideration and the entire responsibility of the dentist. To meet this responsibility the dentist must prescribe various medicines for systemic use as well as for local application.

The dentist should be familiar with the action of the various drugs that he prescribes. He should note the effect of certain drugs on various individuals. A medicinal agent may produce favorable results on one patient and not on another. The prescription of any medication becomes an interesting and challenging field to the dentist.

The dental curriculum might well be expanded to give the dental student more instruction in pharmacology, therapeutics and materia medica. The multiplicity of new medicinal agents and nutritional aids seems to indicate the need for a wider knowledge on the part of the undergraduate dental student in the proper use of these agents, and how and when they should be prescribed.

The use of "plasma fraction I" in otherwise uncontrollable hemorrhages
(Über die Anwendung von "Plasmafraktion I" bei unstillbaren Blutungen)

H. Egli and K. Kessler. *Deut.med.Wschr.* 81:875-876 June 1, 1956

In patients in whom the copious loss of blood from injured vessels cannot be checked or in whom an acute deficiency of fibrin prevents normal coagulation, the administration of fibrinogen in the form of the recently introduced hemostatic "plasma fraction I" usually produces irreversible blood clotting almost immediately.

Plasma fraction I consists of fibrinogen (60 per cent) and blood plasma factor 8, and produces its coagulative effect without the addition of thrombin.

This new fibrinogen hemostatic already has been tested thoroughly and has been used successfully in various departments of medical and dental practice.

The coagulation time ranges from six minutes before administration to one minute after administration, and varies according to the mechanism of extravasation (whether the hemorrhage is caused by ruptures of vessels or by outward passage through otherwise intact walls of vessels).

Diagnosis and treatment of mycotic infections

Hobart H. Proctor. *J.Colorado D.A.* 34:10-13 June 1956

Candidiasis is a disease entity not generally recognized. Its significance to the health of the patient has been underestimated, and therapy has been a problem.

The lesions are fiery red and bleed on direct examination. They appear under complete or partial dentures. In the acute stage of the disease the membrane is smooth, but hyperplasia ensues and the surface becomes rough and often presents a cauliflower-like appearance. This fungus infection appears more often under a maxillary prosthesis with its closer contact with the tissue, which forms a dark, warm region untouched by saliva or the mechanical action of the tongue.

The presence of *Candida albicans* can be demonstrated by culture from the lesion. A sterile instrument is passed to the depth of the lesions. Scrapings taken from two or more regions are placed in agar. At the same time, scrapings should be taken from the prosthesis over the region directly in contact with the lesion, and such scrapings cultured in a separate tube of agar. Smears are of no value for culturing, as the fungi are found in the deeper structure of the lesion.

Treatment consists of the application of nystatin (Mycostatin) powder in suspension, with a measured dropper, directly on the tissue borne surface of the prosthesis. This is done three to five times daily, especially after breakfast and before retiring. The denture should be cleaned each time after food is taken. After seven days the patient should be seen again. The systemic use of nystatin does not affect the oral lesions under dentures; the application of nystatin by cotton is contraindicated.

Since April 1955 the author has treated 27 patients with nystatin. All lesions were cultured and grew *C. albicans*. In all instances, treatment resulted in the disappearance of the red, bleeding lesions; the tissue returned to its normal texture. The longest treatment was 12 weeks, the shortest was 7 days.

Oral surgery



Surgical technics

Plastic surgery in cleft lip and cleft palate: the East Grinstead Unit (Ein Überblick über die Spaltchirurgie der East Grinstead Einheit für plastische Chirurgie)

F. T. Moore, London. *Fortschr.Kief.Ges.Chir.* 1:77-79, 1955

The Plastic Unit of the East Grinstead Hospital, located approximately 50 kilometers from London, formulated certain rules for the guidance of physicians and dentists who referred children with cleft lip or cleft palate to this unit for therapy.

The treatment usually is successful when the child is about three months old, and its weight has reached 10 pounds. Hemoglobin should be at least 70 per cent, and no child is admitted if rash or respiratory infections are present.

In the period immediately after the war, the unit adopted two methods: the slightly modified Veau technic and the Mirault-Blair technic.

When the Veau technic is used, the primary surgical intervention causes little difficulty in the subsequent operation. The disadvantage of this technic consists in the fact that only when the surgeon has great skill and considerable experience can consistently favorable results be achieved.

The Mirault-Blair technic produces a rather long lip without formation of the Cupid's bow, and therefore the secondary operation often proves difficult. For these reasons, a modified form of Mesurier's method has been adopted. This method results in a lip of normal length which has the ability to swell and protrude (pout), and possesses an almost perfect Cupid's bow. The satisfactory correction of the nasal deformity can be achieved at the primary operation, although, if the cleft is severe, the results may not reach expectations.



Figure 1 Left: Child, three months of age, with a complete cleft lip and cleft palate. Note wide cleft with flattening of left nostril and rotation of premaxilla. Center: Postoperative view taken on tenth day; the lip is a little long, but correction of nasal deformity is good. Right: Same child at five years of age. Note excellent result which is typical of repair when the Mesurier technic is used by experienced surgeon.



Figure 2 Dorrance type of operation in which the nasal mucosa is divided to obtain maximum retroposition of soft and hard palate



Figure 3 Anterior extremities of hard palatal flaps sutured to posterior edge of hard palate. Considerable retroposition of soft palate is achieved

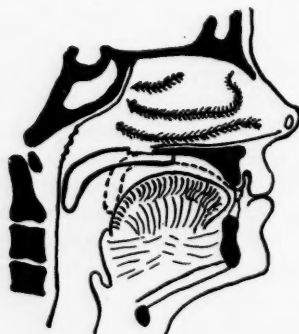


Figure 4 Although the soft palate may be retroposed to touch postpharyngeal wall, in only one out of ten patients is normal speech obtained

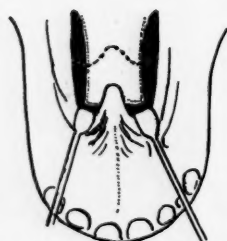


Figure 5 Pharyngeal flap outlined on posterior pharyngeal wall. Flap must be raised as high as possible and not in lower position shown in diagram

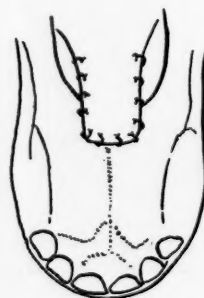


Figure 6 Completed flap. Stitches indicate the raw surface of flap attached to lining obtained from soft palate

In instances of bilateral cleft palate, the repositioning of the premaxilla seldom gives an enduring and satisfactory result. Then a combination of Veau's and Mesurier's methods, modified to suit each individual patient, is employed. The treatment of bilateral cleft palate must be considered in relation to the associated defects, and should begin before the child starts to speak. No child is refused because of imbecility, mongolism or multiple congenital defects.

The correction is achieved either by the Wardill-Veau method, aimed at the possible "push back," or the Veau technic. The first method consists of fracture of the hamular processes, removal of bone behind the posterior palatine artery, and division of the nasal mucosa. This method leaves a large raw region on the nasal surface, but it is claimed that the gain in palatal length offsets any subsequent contraction during the healing period.

The nonvital space, produced by dissection down to the medial pterygoid plates, is packed with gauze saturated in an iodoform preparation. The Veau technic permits repair without fracture of the hamular processes. The nasal mucosa, muscle and buccal surfaces are sutured accurately, and healing occurs with a minimum of scarring. The secondary operation, to obtain the maximum "push back," will not be complicated by massive scar tissue.

Approximately 65 to 70 per cent of all cleft palate patients obtain normal spontaneous speech. In about 30 per cent, however, speech defects occur and remain. When such a child reaches the age of four, the reasons for failure to achieve normal spontaneous speech are established. This investigation may take up to two years, and is carried out by a separate research unit.

Hyperrhinolalia, an excessively nasal quality of voice, often can be checked by roentgenization of the soft tissue; dyslalia, impairment of speech with abnormality of the external speech organs, usually is caused by emotional disturbances affecting the maturation of speech. The intellectual capacity of a child with speech defects must not be too far below normal if therapy is to be successful. The diometric test may reveal slight hearing defects. After an examination of personality and temperament, the children who are not too far below normal are selected for speech therapy.

Orthodontic treatment corrects malocclusions and other oral abnormalities.

In children with normal intelligence, denasalization of speech is the main objective. When the pharyngeal and palatal muscles can be exercised to form a nasopharyngeal closure, the articulation will be normal. The nasopharyngeal closure is achieved in a one or two stage operation—repositioning of the palate (Dorrance) but without skin grafting of the raw nasal surface. This procedure is difficult when the Wardill-Veau method was used for the primary operation, but relatively easy if the Veau technic was used. Even after a normal length of lips and palate has been obtained, the "push back" of the palate sometimes is insufficient. A lined pharyngeal flap then is attached to the soft palate at the point of the maximum leak. No other pharyngotomy is indicated because the immobility caused by scar tissue formed after such surgery far outweighs the advantages to be gained from narrowing the pharynx. The pharyngeal flap achieves success by reanimation or imparting movement to the pharynx and palate. The results obtained by this method have been excellent.

Salivary calculus in Wharton's duct

R.W. Marshall. *J.Canad.D.A.* 22:223-225
April 1956

With the exception of mumps, perhaps the most common condition affecting the salivary glands is that of salivary calculus. Harris reported that salivary stones affected the salivary glands and their ducts in the following order of frequency: (1) Wharton's duct from the submandibular gland, 61.4 per cent; (2) Stenson's duct from the parotid gland, 20.4 per cent, and (3) sublingual gland and ducts, 18.2 per cent.

Three commonly accepted theories of the etiology of salivary calculus include the foreign body theory advanced by Mareau (1876), the inflammatory theory of Immusch (1861) and the parasitic theory of Maas (1871).

The inflammatory obstruction of Wharton's duct by calculus is easy to diagnose. There is an acute or subacute swelling in the submandibular region of the floor of the mouth, well circum-

scribed and tender to pressure. There may be sharp pain radiating along the side of the tongue, more severe during mastication and deglutition. The pain is usually accentuated by the sight, thought or memory of food. The roentgenogram confirms the diagnosis.

A 37 year old man was seen with a fairly severe swelling in the floor of the mouth on the right side. He was experiencing typical salivary colic, which is a sharp pain in the floor of the mouth radiating along the side of the tongue. The patient's temperature, orally, was 100.5° F. There was some swelling along the right side of the floor of the mouth, and the mucous membrane was inflamed. A hard mass could be palpated in the region of the submandibular duct. Roentgenograms indicated the presence of calculus.

After premedication, the lingual nerve on the right side was blocked with procaine hydrochloride, and several drops of the anesthetic were injected into the mucous membrane of the floor of the mouth. A suture was placed through the tissue posterior to the calcareous mass and tied around the first molar. The mucous membrane was incised parallel to the duct, over the anterior portion of the calculus. When the stone was uncovered it was grasped with tissue pliers and removed. Relief was instantaneous. By the third day postoperatively, pain and swelling had practically disappeared.

**Direct transplantation
of preserved cadaver rib after excision
of the lower jaw because of an
adamantinoma**

P. M. Medvedyev. *Stomat., Moscow* 6:41-44
Nov.-Dec. 1955

A number of authors agree that adamantinomas demand radical surgical extirpation of the tumor or removal of the jaw. Palliative scraping of the tumorous mass from the adjacent tissues will not prevent recurrence. In the Clinic of Stomatologic Surgery, headed by Prof. A. A. Limberg, scraping is rarely done and then only because of the patient's age or because the tumor has to be reduced so that adjacent bony walls may be restored, to make total extirpation possible. Usually

the operation is performed with local anesthesia, by infiltrating a 2.5 per cent solution of procaine hydrochloride mixed with 300,000 to 500,000 units of penicillin.

For resection of part of the lower jaw or for its removal, the soft tissues are detached with the periosteum, if the tumor has invaded it. The healthy half of the lower jaw is held in position with a plastic Vankeovich splint over the teeth, this having been prepared and adjusted in advance. Usually defects of the lower jaw are filled with bone taken from the outer surface of one of the patient's ribs, but since this adds one more operation, the procedure may be contraindicated by associated severe diseases. Then the material of choice for filling bone defects is deep-frozen homogeneous cadaver bone. (The Leningrad Research Institute of Blood Transfusion maintains a bone bank.)

Preserved cadaver bone has been used on three patients by the author; in two patients gunshot defects of the lower jaw were repaired with preserved fibular bone and in one patient the full thickness of a rib was used after the extirpation of an adamantinoma through a large wound communicating extensively with the oral cavity.

This operation was performed on a woman 63 years old. Twice doctors had ruled against radical surgery because of the patient's hypertonia, cardiovascular insufficiency and pulmonary emphysema. The author, after careful observations, was aware of the great risk involved in operating, but considered it no less risky, and possibly even more hazardous, to rule out radical surgery.

The operation was performed under ether, oxygen and nitrous oxide anesthesia in conjunction with local infiltration of a 0.5 per cent solution of procaine hydrochloride. The incision extended from the angle of the chin to the lobe of the ear, but later had to be extended along the midline of the chin to the lip, because of the size of the tumor. The left half of the jaw, with the adamantinoma isolated from healthy adjacent tissues, was removed. The mucous membrane of the floor of the oral cavity and the mucous membrane of the cheek were sutured together. The internal pterygoid muscle, which was thinned and atrophied, as was the masseter muscle, was spread and sutured with catgut to the lower edge

of the wound at the level of the angle of the jaw. The masseter muscle was sutured to the shreds of skin at the same level.

Into the bed thereby formed, in isolation from the oral cavity, the cadaver rib, which had been stored for ten months, was planted. Since a sufficiently long piece of rib was not available, two pieces had to be joined end to end to secure a transplant 17 cm. long. The wound was powdered with a spongy hemostatic material mixed with 300,000 units of powdered penicillin. The transplant was sutured into position with catgut and bolted to the healthy half of the lower jawbone. The skin was sutured with horsehair. To maintain the right half of the jaw in position, the plastic Vankevich splint was fitted over the teeth. The patient received 250 ml. of preserved blood and 400 ml. of 5 per cent dextrose solution during the operation, which lasted three hours and required 40 liters of ether, 200 liters of nitrous oxide, 600 liters of oxygen and 60 ml. of 0.5 per cent procaine hydrochloride solution.

The tumor, after evacuation of its contents, weighed 400 Gm. and was 10 cm. high, 11 cm. wide and 18 cm. long. The postoperative course was smooth. Healing was good, and the patient felt well. Four months later, the facial contour had improved considerably and good oral function had been restored. No pathologic shifting had taken place at the juncture of the transplant and the healthy half of the jaw. Not only does the transplanted bone form an effective bridge between jaw remnants but it also provides a good support for the artificial dentures which the patient is required to wear.

Tic douloureux

Collin S. MacCarty. *J. Internat. Col. Surgeons*
26:56-59 July 1956

Associates in the Section of Neurologic Surgery at the Mayo Clinic have found no satisfactory method for the permanent relief of trigeminal pain, short of operation.

A patient with typical tic douloureux of the fifth cranial nerve usually is advised to try one or two peripheral nerve blocks with alcohol. This treatment is done to show the patient that the

pain can be relieved without disfigurement, and to demonstrate anesthesia of the face to the patient. A patient with trigeminal pain usually welcomes the anesthesia as a substitute for the pain. If, however, he prefers pain to anesthesia, then interruption of the posterior root of course should not be advised.

The definitive therapy of trigeminal neuralgia therefore focuses itself on surgical operation. The only certain way to relieve pain is to section the posterior root. The resultant anesthesia is an undesirable but necessary sequel.

Posterior root section, which offers about 97 per cent relief of pain and is associated with a mortality rate of less than 2 per cent and rarely has undesirable reactions, is still the most reliable and effective method of relieving tic douloureux. The gangliolysis procedures and compression procedures of the posterior root are worthy of further investigation.

In 1954 Love and Svien, of the Mayo Clinic, reported on 100 cases of decompression of the posterior root. Fifty-eight of the patients obtained relief, 31 had pain which seemed characteristic of trigeminal neuralgia, and the condition of 11 was indeterminate. As time elapsed after the surgical procedure, there were more recurrences of pain. At present the decompression operation rarely is advised, and few surgeons expect the procedure to provide permanent relief.

In certain selected instances, however, decompression might be worth a trial—for bilateral trigeminal neuralgia in young, vigorous persons who are willing to risk multiple surgical procedures to avoid facial anesthesia, or for persons who are blind in the eye opposite the facial pain and do not wish to accept the 3 or 4 per cent risk of the development of iritis or keratitis in the remaining functioning eye.

Shelden, who with his associates has performed compression of the posterior root fibers in 56 cases since 1953, reports that "thus far we have had complete relief of pain in every instance and have had no recurrences." Although the procedure can be offered interested patients in the hope that some permanent remission of pain can be obtained thereby without the production of facial anesthesia, it is doubtful that all patients will remain permanently free from pain as a result of such a procedure.



Anesthesia and analgesia

Effect of local anesthetics on blood pressure in dogs after inhibition of the sympathetic nerve (Die Wirkung von örtlichen Betäubungsmitteln auf den Blutdruck von sympathicuslädierten Hunden)

L. Koscár and I. Sárkány, Debrecen, Hungary.
Anaesthetist, Berlin 5:7-9 Feb. 1956

Clinical experience reveals that after local anesthesia, toxic effects, fainting spells and stoppage of the heart or the respiration occur more frequently in dental practice than in major surgical procedures. A possible explanation of this oddity is that in major surgery the local anesthetic usually is applied to and operations are performed on patients in a recumbent position.

At the Dental Clinic (in cooperation with the staff of the Institute for Experimental Pathology) of the University of Debrecen, Hungary, animal experiments were carried out to determine the effect of local anesthetics on blood pressure. After the cervical and stellate ganglions had been extirpated, 15 dogs (of both sexes) were anesthetized locally with (1) procaine hydrochloride, (2) lidocaine hydrochloride and (3) tetracaine hydrochloride. The effects of epinephrine, acetylcholine and histamine on the blood pressure of unpremedicated dogs, and on dogs premedicated with eseramine, also were investigated.

The results were as follows:

1. After customary local anesthesia of dogs in which the sympathetic nerve ganglions had been eliminated surgically, epinephrine produced a two-stage effect: a characteristically initial increase of the blood pressure, followed by a sudden decrease.

2. The lowering of the blood pressure obtained with procaine hydrochloride was strengthened by inhibition of the sympathetic nerve.

3. The effect of lidocaine hydrochloride (under the same condition) was similar but not as intensive as that of procaine hydrochloride.

4. The effect of tetracaine hydrochloride on the blood pressure was hardly detectable.

5. After a complete extirpation of the sympathetic ganglions, the lowering of the blood pressure was strengthened by simultaneous medication of procaine hydrochloride, lidocaine hydrochloride and tetracaine hydrochloride when combined with epinephrine.

After local anesthesia, toxic effects, fainting spells and stoppage of the heart or the respiration in dental practice can be prevented by simultaneously applied combinations of these drugs.

Dentistry for adult cases of cerebral palsy

Niels Bjorn Jorgensen. *J. South. California D.A.* 24:19-21 May 1956

Children who suffer from severe cerebral palsy generally are taken to children's hospitals for necessary dental treatments under general anesthesia, but for adults this is difficult, since other hospitals have no complete dental equipment. It is difficult to do reconstructive dental work on adults under general anesthesia. Two case histories illustrate dental treatment performed on adult cerebral palsy patients under premedication and local anesthesia.

A 36 year old woman, with the type of cerebral palsy characterized by a tendency to fixed rigidity of the muscles and joints, was given pentobarbital sodium intravenously, slowly. After about 125 mg. had been given in ten minutes, the patient's arms began to relax, and after 25 mg. in addition, she was able to open her mouth. About 60 mg. of meperidine hydrochloride and 1/200 grain of scopolamine was injected slowly in 15 minutes, after which the patient was able to open her mouth sufficiently for the operator to take a full set of roentgenograms and to examine the teeth and mouth.

There was extensive caries in all upper teeth and all lower posterior teeth. The reconstruction work was done in 12 sittings without hardship or discomfort for the patient. Each sitting lasted two to three hours. All the patient's teeth except the lower incisors were reconstructed, most of them with full gold veneer crowns.

A 38 year old woman, with the spastic type of cerebral palsy characterized by uncontrolled,

jerky movements of the head and limbs, was treated similarly. After 200 mg. of pentobarbital was given intravenously and 100 mg. of meperidine hydrochloride and 1/200 grain of scopolamine were administered, a full set of roentgenograms was taken. At the second sitting, after the same premedication, in all upper and lower molars the carious lesions were removed and the teeth restored with alloy fillings. Local anesthesia was used for pain control.

Muscle relaxants as an adjunct to general anesthesia in the dental office

Leonard M. Monheim, Glenn W. Peiffer and Richard J. Lowell. *Oral Surg., Oral Med. & Oral Path.* 9:638-640 June 1956

Muscle relaxants form a comparatively new group of drugs which have a definite place in office anesthesia. A muscle relaxant is a drug which blocks nerve impulses at the myoneural junction, thereby causing relaxation and paralysis of skeletal muscle. The ultra-short duration of action of succinylcholine chloride makes it the drug of choice for dental office procedures.

Succinylcholine chloride, when used in full strength (50 mg. in 1 cc.) is incompatible with thiopental sodium. When used in dilute 0.2 per cent solution, however, it is compatible with the intravenous anesthetic agents. With a single intravenous dose of 10 to 30 mg., relaxation is present within one minute, attains its maximum in two minutes, and usually disappears within five minutes. At the time of maximum effect, a transient apnea may occur. A more precise degree of control of relaxation may be obtained by continuous intravenous drip.

The administration of the drug in a 0.2 per cent solution by continuous intravenous drip is preferred. The vehicle may be 5 per cent dextrose in water, or isotonic sodium chloride solution. The average adult dose is 2 to 3 mg. per minute, but patient response must govern individual dosage.

Since succinylcholine chloride may paralyze the respiratory musculature, facilities for the administration of positive pressure oxygen by trained personnel must be available.

Succinylcholine chloride is being used by the continuous intravenous drip method to potentiate the action of the thiopental sodium and nitrous oxide combinations. Much less thiopental sodium is needed for controlled premedication and induction, and the patients are more easily maintained with nitrous oxide and oxygen, when succinylcholine chloride is used. The incidence of laryngeal spasm has also been greatly diminished.

It must be understood that the degree of relaxation afforded by succinylcholine chloride is practically always accompanied by some decrease in respiratory volume; in some instances complete respiratory paralysis may result. It is necessary, therefore, to maintain the oxygenation adequately by augmenting the inspiratory phase of the respiratory cycle. It is essential that only trained anesthesia personnel employ the muscle relaxants.

Problems of local anaesthesia in dental practice

B. Simon. *Internat.D.J.* 6:158-173 June 1956

The literature on anesthesia is reviewed and the following conclusions are reached:

1. For the dentist local anesthesia is to be preferred to general or central anesthesia, for the latter may impede working conditions, endanger the patient, disperse the dentist's concentration, require hasty work, impede the patient's co-operation, and cause a greater psychic trauma.
2. A serous or purulent inflammation of the region to be injected need not be considered a contraindication for local anesthesia.
3. The anesthetic compound that fulfills best all the conditions of a good local anesthetic is procaine hydrochloride (Novocain). Its single drawback is its small capacity for penetration through the mucous membranes, a peculiarity which makes it unsuitable for surface anesthesia.
4. The most suitable vasoconstrictor is epinephrine. It has an incomparable vasoconstrictive effect, it does not last longer than tissues can tolerate, tissues are not injured, the required dose is well under toxic levels, the drug is tolerated by all patients, and secondary effects are not dangerous or enduring and they can be prevented. De-

ficiencies of epinephrine include its high toxicity, its disagreeable side effects in some instances, and its mediocre resistance to alkalinity, light, heat and oxygen.

5. Other adjuvants, except suitable quantities of sodium chloride, potassium chloride and calcium chloride, are unnecessary in anesthetic solutions.

6. To reduce the possibility of subsequent edema the solution must not be more acid than pH 6.5.

7. Absolute sterility of syringes and needles can be ensured solely by autoclaving at 137° C. for from five to ten minutes.

8. Preliminary aspiration before injection is needless and dangerous, for it may infect the interior of the syringe. Even without preliminary aspiration, the interior of the syringe is to be regarded as infected after a single injection.

9. It is important to inject slowly while inserting the needle.

10. The sympathetic nervous system plays a significant role in the pain-conducting innervation of the periodontium.

A clinical evaluation of Unacaine in oral surgery

George Christensen. *Oral Surg., Oral Med. & Oral Path.* 9:540-544 May 1956

During a routine period of three months in the author's practice, 308 patients were given the local anesthetic metabutethamine hydrochloride (Unacaine) for the surgical removal of teeth and retained roots in 180 patients, impacted and unerupted teeth in 52, apicoectomies in 15 and miscellaneous surgical procedures in 61.

Anesthesia in infiltration and intraosseous techniques is instantaneous with metabutethamine hydrochloride. In mandibular blocks, surgical anesthesia is usually present in about one to three minutes.

Profound anesthesia was obtained in every instance, and no patient experienced any painful sensation.

The longest duration of anesthesia was about one hour. No patient required a subsequent injection.

The disappearance of anesthesia and the return of sensation is as rapid with metabutethamine hydrochloride as is the onset of anesthesia.

The incidence of untoward side effects was low. The incidence of tachycardia during intraosseous injections with metabutethamine hydrochloride was 25 per cent, compared with 75 per cent and 100 per cent with other local anesthetics.

No instances of postanesthetic pain occurred.

Roentgenology

Removal of broken needles in the region of Spix's spine (Remoção de agulhas fraturadas na região da espinha de Spix)

W. Tupinambá da Costa. *Riogrande odont.Brazil* 14:9-13 Nov.-Dec. 1955

A technic has been developed for the removal of broken needles from the region of Spix's spine. Intra-incision roentgenography is used to locate the broken needle. The instruments used in the method are a syringe for infiltration anesthesia, a bistoury, a retractor, an exploratory curve forceps, a dressing forceps, an odontoscope and two small Kocher's hemostatic forceps (one straight and one curved). Gauze with thimerosal, suture thread, needle, needle holder, scissors and two rectangular films for dental roentgenography are also needed.

Prior to the operation the films are cut in half, one in the direction of the width, the other in the direction of the length. Thus four films, two of each type, are available: the two halves of one film are long and narrow, whereas the two halves of the other film are short and wide. The cut edges of the films are sealed with black paper and the films are sterilized with formaldehyde vapors.

The operation is carried out as follows: Infiltration anesthesia is produced in the entire region of the pterygomandibular space, especially in the lingual nerve. General anesthesia is indicated in rare instances (in patients with severe nausea or ones who are extremely excitable).

A 2 cm. vertical incision is made upward from the horizontal prolongation of the occlusal surface of the third molar. The soft tissues, especially the fibers of the anterior fasciculus of the internal pterygoid muscle, are retracted on both sides of the incision, under illumination from the odontoscope, to the point where they reach the posterior boundary of the pterygomandibular space. Great care is taken during this stage not to touch the lingual nerve (touching it results in an acute attack of nausea which calls for anesthesia of the trunk of the lingual nerve). Fibers of ligaments and of muscles and aponeuroses are not cut. Only the fat tissue that interferes with examination of the tissues is excised.

During this stage of the operation the tissues are observed carefully because often one of the ends of the broken needle may be seen. Intra-incision roentgenograms to locate the needle are made by using the halves of the films previously prepared. The first two roentgenograms are made by using one film of each type. The film is placed into the surgical space parallel to the internal surface of the ascending ramus, and it is fixed therein by means of a small straight hemostatic forceps. This forceps rests on the occlusal surface of the last two molars where it stands as a point of reference in relation to the cusp surfaces of these molars (or to other fixed points in the alveolar edges in edentulous persons). With the film in this position the roentgenogram is taken with the rays perpendicular to the film. The films are then developed.

If the needle is located between the forceps and the ascending ramus, it shows clearly in the picture in its exact location and position. If it does not appear in the pictures, two more roentgenograms are taken, one with the narrow film in such a manner as to have the forceps appear as little as possible in the picture. If the needle was concealed by the forceps in the previous pictures, it will show in this picture. The last roentgenogram is taken with the wide film using the same technic and the same angle of incidence that were used in the first two roentgenograms but with the sensitive surface of the film directed toward the pharynx. If the needle is located between the forceps and the pharynx or between the forceps and the middle line, it will show in this last roentgenogram.

After the needle has been located, the forceps is kept in place to serve as a guide in the removal of the needle. This is carried out with a small, curved exploratory forceps under illumination from the odontoscope. With this forceps the needle is seized and easily removed. Hemorrhage in this region is minimal. The mucosa is sutured with two or three separate stitches.

The technic developed by the author using intra-incision roentgenography has permitted him to remove easily many needles that had broken during the induction of anesthesia to the lower dental nerve. The technic is simple and the instruments used are easy to obtain. The results are better than those obtained with any other technic, including that in which the location of the needle is ascertained by digital palpation.

Dental office radiation hazards

H. C. Fixott, C. K. Claycomb and A. Pflugrad.
Oregon D.J. 25:2-4 June 1956

Nolan and Patterson, in their 1954 report of their survey of radiation hazards from the use of dental x-ray units, found that the lymphatic tissue in the region of the neck was receiving large amounts of radiation. In nine of the ten patients examined, a drop in the number of lymphocytes had occurred within 7 to 12 hours and had remained depressed for from 2 to 30 hours. Other hematologic changes were observed. Stray or secondary radiation indicated that in six offices the operator was exposed to a field of radiation ranging from 0.6 r to 2.0 r per hour, a value considerably above the maximum levels recommended by the National Committee on Radiation Protection. This survey team suggested that a long cone and aluminum filtration be used.

A survey of radiation hazards in dental offices throughout the State of Oregon has been begun, starting in the Portland and Medford areas. The reports are presented tabularly. It is apparent that many dentists are subjecting patients to therapeutic doses of roentgen rays. With the addition of a filter, a longer cone with diaphragm, and more sensitive film, the radiation was reduced tenfold to fifteenfold. Filtration and a long cone are essential if the patient and operator are to be protected.

In a few offices, the dentist or his assistant was standing close to the patient and directly in the path of the roentgen rays. It was recommended that a longer control cord be installed, and that all personnel station themselves behind adequate lead shielding. Another unsafe practice is the holding of films for the patient by the dentist or his assistant. Many dentists have radiation burns without realizing it, and one dentist in Oregon has lost a finger.

To use the aluminum filtration and increased cone length, the practitioner must also use fast film speed. The quality of the exposed films is increased, however; there is less fogging, and sharpness and detail are improved, with less distortion.

Many dentists unwittingly are subjecting their patients, assistants and themselves to needless amounts of roentgen radiation. Wherever practical, all x-ray units should be monitored every three years.

In one group of dental offices the quantity of radiation was reduced from an average of 174.4 r per minute to 12.3 r per minute by the use of shielding, safe technics, long cone, filtration and sensitive film.



Miscellaneous

Habilitation of the cleft-palate patient

Donald W. MacCollum, Sylvia Richardson and Lennard T. Swanson. *New England J. Med.* 254:299-307 Feb. 16, 1956

In recent years the management of cleft palates has expanded and has become very controversial. The field is no longer considered the sole province of the plastic surgeon, the prosthodontist or the speech therapist, but is recognized as an area demanding the cooperative efforts of multiprofessional teams.

For many years most plastic surgeons have preferred to repair a cleft palate during the first two years of life, before the speech pattern is estab-

lished. Many orthodontists and prosthodontists and some surgeons, however, consider it advisable to delay surgery on the palate until a child is between four and seven years old.

During the past ten years 1,034 children were operated on for cleft palate by the plastic service of the Children's Medical Center in Boston. From this larger number two groups were seen for a detailed follow-up study. The average operative age of the group was 19 months. Fifty-six of the children represented a consecutive series operated on in 1946 and 1947. The remaining 108 children were selected because of good speech and availability.

Of the entire group, 130 children (79 per cent) spoke with no nasality, and of this number 116 (90 per cent) had no speech therapy other than that given by parental guidance. Only 19 per cent had a hearing loss averaging at least 20 decibels in the better ear.

Activity of the lateral pharyngeal walls appeared to be the most important single factor in the physical production of good speech. Non-nasal speech resulted if the palate was long and muscular and there was good lateral pharyngeal activity, with or without strong visible contraction of the posterior pharyngeal wall, or if the palate was short but there was tremendous lateral pharyngeal activity, with or without strong visible contraction of the posterior pharyngeal wall. Of no discernible significance were the type of original cleft, length of palate, and hearing loss.

One hundred and sixty-four children received thorough dental examinations. Facial patterns as determined by cephalometric evaluation were different from ideal normal patterns, but did not differ appreciably from those of a random sample of the normal population. Dental occlusions were good in a number of patients and ideal in some whose defects did not extend through the alveolar process. Cross-bite relations found in unilateral and bilateral alveolar cleft palate were common but could not be related to the time when the operation was performed.

An early and proper surgical repair, coupled with intelligent parental speech guidance and conscientious dental care achieves satisfactory habilitation of the child with a cleft palate, thereby avoiding the need for rehabilitation.

Prosthetic dentistry



Partial dentures

The "spring slide joint," a new attachment for lower partial dentures (Das Feder-Gleitgelenk)

Magne Hekneby, Tretten, Norway.
Schweiz.Mschr.Zahnk. 65:1231-1243 Dec. 1955

As an anchorage for lower partial dentures, especially those with free end saddles, a new attachment, the "spring slide joint," has been introduced recently. This attachment consists of two parts: (1) an elastic wire which is connected by its free ends to the acrylic saddle, and (2) a clasp with a channel for the spring. This channel runs buccolingually and is 2 mm. wide and from 0.8 to 0.9 mm. high.

The spring is curved and connected to an elastic wire of either stainless steel or gold (from 0.7 to 0.8 mm. thick). The ends of the wire are crossed behind the tooth in two small bows before they are connected to the acrylic material.

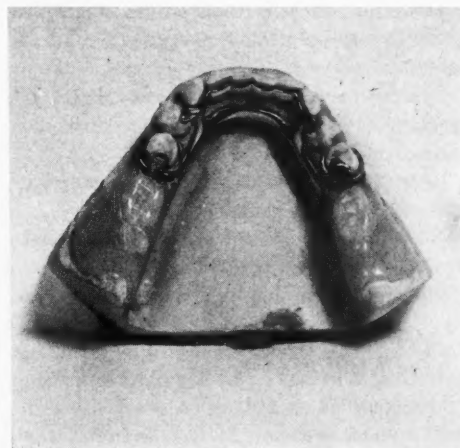
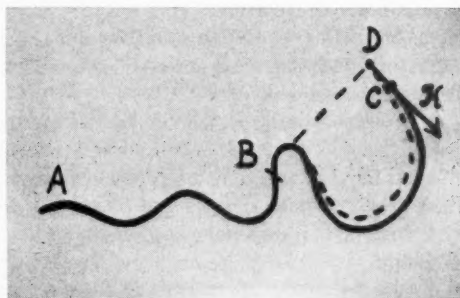
The rather loose connection between clasp and spring permits a certain amount of free movement for the partial denture such as (1) a vertical rotation on a transversal axis; (2) a turning on a sagittal axis, and (3) a short transversal torsion.

In a static position, the spring lies close to the upper end of the clasp channel. During mastication, the saddle is pressed down and the spring follows this movement and produces a slight pressure against the floor of the channel.

Experiments made with models reveal that the saddle rests on the gingival edges, and when only one spring is used, a desirable relation is achieved between the pressure of the saddle, the sliding movement of the spring, its curving, and the stress exerted on the supporting teeth. The intensity of the stress depends on the direction of the channel which runs at an angle of from 50 to 60 degrees. The curving of the spring furnishes a little more than half of the pressure exerted by the saddle. To apply a pressure of from 1, 1.5 to 2 kg., the spring should be curved 0.55, 0.99 to 1.28 mm.

The correct position of the clasp channel is important. The pressure must be directed to the

Above: The spring slide joint. Line A-B-C shows spring in rest position, A-B-D shows spring during activation, D is the pressure point and K designates the sliding movement. Below: Spring slide joint in situ



lower end of the clasp to avoid disconnecting the clasp and tooth.

Many reports on these spring slide joints state that patients now wear their lower partial dentures without difficulty and seem to be satisfied completely.



Complete dentures

Some problems associated with construction of full dentures

E. D. Ramsay. *Austral. D.J.* 1:114-118
April 1956

Education of the patient is essential to success with complete dentures. The patient should be told the particular problems associated with the construction, the wearing and the care of his dentures. He should know what to expect and how he best can cooperate.

In the taking of impressions, the following basic principles should be observed, irrespective of the technic employed:

1. An impression tray suitable for the mouth is selected.
2. As large an area of tissue as possible is covered.
3. Materials are manipulated according to their properties.
4. A valve seal of the peripheries of the impression including the postdam areas is provided.
5. The need for relief of various areas is observed.

Underextension of the impression results in a diminution of the surface area covered, which decreases retention.

Overextension results in impingement on muscular tissue, and traumatic lesions.

The periphery of the impressions should be determined accurately, since this will represent the periphery of the completed dentures. Postdamming on the maxillary impression must be built up so that the embossed line will be sealed into soft tissue. The tray forms should be constructed of materials which will not bend or become distorted under pressure. Pressure over the whole

mouth should be equalized. The various stages in making the impression should be carried out with the mouth only half open.

The registration of centric relationship is most important. Common faults include the following: baseplates poorly adapted to casts; overextension or underextension of peripheries; insufficient rigidity of the baseplate material; overcontoured biterims or contour models; excessive freeway space; failure to see that rims contact evenly; too much pressure, and too little freeway space with elderly people.

Common errors in processing the dentures include the following: overcontouring; overextension; underextension; teeth set too far lingually; teeth set too far outside ridge; unbalanced occlusion; unbalanced articulation; sloping occlusal plane; rocking of maxillary denture; too much freeway space; insufficient freeway space; warpage of the denture base; tongue and cheek biting; occlusal plane too high or too low; lack of sufficient area covered; lack of peripheral seal, and dentures that are too thick.

The patient should be instructed in the use and care of artificial dentures, particularly with regard to eating with the dentures.

Polishing of artificial dentures (A fémfogművek fényezése)

György Huszár. *Fogorv.szemle* 49:39-47
Feb. 1956

Metallographic examinations reveal that polishing of artificial dentures increases the anticorrosion quality of the metal surfaces. Grinding and subsequent polishing remove edges and surface crystallites. Polishing also influences favorably the resistance to color changes, mechanical wear and permanent strength of the dentures.

The anticorrosion quality of dental alloys is largely distributed in protective layers of the surfaces. According to recent theories regarding the surfaces of precious metals, an extraordinarily fine, invisible and protective layer appears to be present. The strength of the layer is greater when dental alloys of chrome content (stainless steel, chrome-cobalt-molybdenum or chrome nickel) are used. The protective layer of stainless steel

alloy increases in firmness when the chrome content of the alloy is more than 15 per cent, when the crystal structure is homogeneous and when the surfaces of the denture are polished.

Pastelike materials of various densities, the so-called polishing masses, usually made of ground grain dust and different fats, are employed as polishing materials. In Hungary, four brands are preferred in dental practice and laboratory work. These are: (1) a green polishing mass, the basic material being chrome oxide; (2) a white polishing mass, consisting mainly of Vienna chalk; (3) a brown and grey polishing mass, the basic material being quartz dust, and (4) a red polishing mass, consisting mainly of aluminum clay. It can be assumed that chrome oxide penetrates deeper into the pores of metal surfaces than other ingredients and, therefore, increases the anticorrosion property of metal or alloy.

The polishing process consists of such procedures as smoothing, primary glossing and finishing. The degree of superficial luster obtainable cannot be determined by physical methods. In dental practice, two methods can be employed for determination of the denture's gloss: (1) a microscopic examination of surface smoothness, and (2) a macroscopic evaluation of the reflective capacity. The results of the individual polishing procedures can be measured by metalloscopy. The micrograms can be evaluated by comparison with photograms taken of the various polishing procedures, and possible defects can be detected and corrected easily.

Dentists frequently have to reshape and re-grind dentures produced in dental laboratories before these dentures can be inserted. A uniform polishing of each metal tooth and metal part is essential, especially if they are made of alloys containing chrome. A repaired denture should always be repolished before it is inserted in the patient's mouth.

The degree of luster of the artificial denture decreases after the prosthesis is worn. The extent of such a decrease of gloss depends on different factors, such as the material used in construction, the degree of the original luster, the condition of the oral cavity (acid or alkali), the use of different alloys in one mouth, the quality of food masticated, and whether the patient brushes the denture regularly. Periodic brushing and cleans-

ing produce polishing effects. Scratches in dentures caused by hard food and masticatory function reduce not only the denture's luster but also the denture's resistance to stress.

Constant use of hard (nylon) toothbrushes, however, may cause a decrease of gloss in recently polished dentures, leaving deep scratches on the surfaces, and weakening the protective layers of the dentures, especially of those containing precious metals, stainless steel or dental alloys.



Crown and bridge

Fabrication of acrylic jacket crowns without laboratory facilities

Eymard L. Doyle. *U.S. Armed Forces M.J.*
7:693-694 May 1956

The dental officer in the armed services must use ingenuity at times to overcome problems not faced by his civilian counterpart. One such problem is the restoration of the function and appearance of an anterior tooth that is too badly broken down to be restorable by normal operative procedures, when there are no prosthetic laboratory facilities.

The tooth is prepared without a shoulder; a chamfer finish, or merely a taper finish to the gingival attachment, is employed. In lieu of the gold casting at the gingival margin, an annealed copper band collar is used to obtain a definite finish line at the gingival attachment and to help prevent spreading of the acrylic resin and eventual leakage beneath the gingiva.

An annealed copper band that fits snugly at the gingival attachment is contoured. A cut is made from the incisal edge down toward the gingival margin so that only about 1 mm. remains above the gingiva on the labial, incisal and distal sides, with about 3 mm. remaining on the lingual side. Two or three cuts are placed on the lingual part of the band that extends above the gingiva, to provide a mechanical lock for the acrylic resin.

The copper band collar is placed in position on the tooth beneath the gingiva. The tooth is isolated with cotton rolls and dried. A thin mix of

self-curing acrylic resin is painted on the tooth and copper band with a sable brush. A small amount of acrylic powder and liquid is placed in a mixing jar. When it has attained the right consistency, it is placed on the tooth and contoured with the fingers. The patient closes his jaws in centric occlusion and the assistant sprays water on the region until the acrylic resin has hardened. The acrylic jacket is removed and a thin mix of acrylic resin is painted on the region of junction of the copper band and crown.

Disks and burs are used in carving. The crown is tried on the tooth and checked for high spots and in lateral and protrusive excursions. The crown is polished with pumice and chalk. The exterior of the jacket crown is lubricated, the prepared tooth is dried, and the crown cemented in place.

At any later date, a more permanent gold and acrylic crown can be constructed without having to alter the existing preparation.



Miscellaneous

Effect of various denture cleaning solutions on chrome cobalt alloys

J. F. C. Morden, G. A. Lammie and J. Osborne.
D.Practitioner 6:304-310 June 1956

Chrome cobalt denture alloys show signs of corrosive attack when exposed to certain proprietary denture cleaning solutions and antiseptics. A study was made of the effects of different cleaning solutions on two commonly used chrome cobalt alloys, Croform and Virilium. Two methods were employed, a weighing method which revealed changes in weight after varying periods of immersion in the cleaning solutions, and the method of metallurgical examination, macroscopic and microscopic.

Alloy specimens were cast in the form of rectangular plates about 1 by $\frac{1}{2}$ by $\frac{1}{8}$ inch. Each specimen was cleaned and weighed. The specimens were then immersed in jars containing the

denture cleaning solution, for periods of from 41 to 94 hours, the total period of immersion for each specimen being 462 hours.

Steradent, Milton denture powder and Dencen can be used safely with chrome cobalt dentures. Milton Antiseptic, Parazone and Dencen immersion are contraindicated. Adherence to the instructions of the makers is recommended.

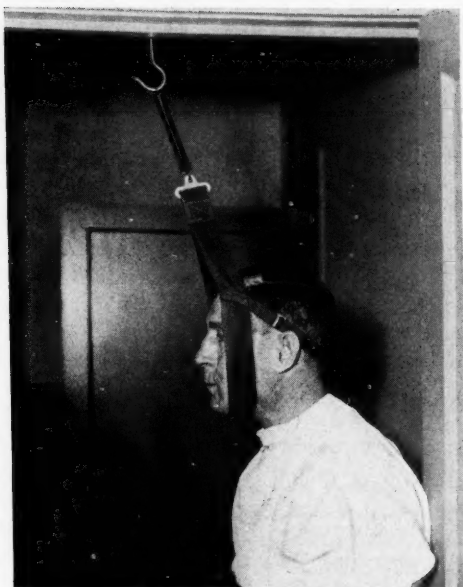
Centric in edentulous prosthesis

Harry Barishman. *New York Univ.J.Den.*
14:164-168 June 1956

A simple method of registering centric occlusion in complete denture prosthesis involves the use of a new material in the biterims of the baseplates. The material, known commercially as "Mortite," may be procured in hardware stores. Unheated Mortite possesses the correct degree of plasticity, so that the muscular forces involved in biting are transmitted through the Mortite to the mucosa of the ridges and the palate, and to the tissues at the condyloid joints.

Shellac bases are prepared in the customary manner and lined with zinc oxide paste on tin foil. The upper biterim is built up with wax to a level suitable for proper lip markings. The lower biterim is similarly built up, but the wax is kept 5 to 6 mm. short of the required height. Layers of Mortite are added to the lower biterim to a height of 10 mm. The inside of the biteplates are dusted with powdered gum tragacanth, to help maintain the biteplates firmly on the ridges. The baseplates are placed in the mouth. With a bulb syringe, cold water is deposited lingually to the lower rim and the patient is directed to swallow. This is repeated a number of times. Each time the patient swallows, he bites on the Mortite layer and compresses it. The swallowing continues until the dentist is satisfied that the Mortite has been compressed to the proper vertical height. Hot wire staples are inserted in the wax portion of the rims. The baseplates are chilled, removed, and placed on the casts for mounting on the articulator.

The patient cannot swallow a mouthful of water unless the teeth are in contact and the mandible is in the most retruded position.



The apparatus in use with a stationary screwhead in a doorsill

Professional activities



Miscellaneous

Kinkeaser

Edwin O. Seiser. *M.Techicians Bul.* 7:133-134
May-June 1956

The Kinkeaser is a simple device which was created originally to alleviate stiff necks and backaches so prevalent among dentists. Since its inception, however, the apparatus has been used satisfactorily by those in various walks of life, by pilots aboard aircraft carriers to relieve strain and tension, and by physiotherapy departments of the U.S. Navy.

The device can be made of heavy canvas, belting parachute harness, or any type of sling or halter that can be adjusted to fit the head. The chin piece can be lined or padded with some soft material, if desired, and the small strap can be adjusted to fit snugly just back of the ears and around the base of the skull.

The apparatus has no weights, pulleys, handles or cranks. The supporting spring lends a mild massaging effect and also gives "bounce" and resiliency to the tension exerted on the spinal column and the back muscles. The degree of this tension can be determined by the user according to the amount of weight taken off the feet.

Satisfactory results can be obtained by rocking back on the heels, thus exerting a forward pull while allowing the body to hang limp and relaxed. This pull should be continued for from two to three minutes. Complete suspension is not recommended.

The device has been beneficial in the treatment of migraine headaches. Contraindications include patients with fractures and certain types of myositis.

**A German dentist's experience
in a Russian prisoner-of-war camp**

(Als Zahnarzt im russischen
Kriegsgefangenenlager)

Heinrich Rosenthal. *Zahnärztl.Mitt.* 44:134-136
Feb. 15, 1956

When the German division in which I served as an Army dentist capitulated, I thought that the war was over for me and that my stay in a Russian prisoner-of-war camp would be short. How wrong can a man's thoughts, hopes and dreams be?

The transport through the immense plains of European and Asiatic Russia in unheated cattle cars with no sanitary facilities and without adequate food and water soon corrected my wishful thinking.

In the Siberian camp, which I will not name because many of my fellow prisoners are still there, I was not regarded as a war prisoner, as an Army dentist with officer's rank, or even as a human being. I was convict No. AO 834 among other convicts, a slave, a working animal and nothing else. My hands were rough and blood-covered, my legs and feet hardly able to support me, I coughed constantly, I was starving. My body resembled a skeleton, and I still wonder that it contained blood enough to make it worthwhile for lice and flies to pester me constantly.

I labored in the mines, worked in the fields, and I cleaned the dirtiest kitchens, cellars and latrines in all Siberia. My dinner, after from 15 to 16 hours of strenuous work, consisted of a small pot of weak soup, a still smaller pot of millet porridge, 35 Gm. of smelly fish (Sunday's and holiday's "banquet" included 25 Gm. of boiled, flabby meat) and 300 Gm. of dark rye bread.

One day an orderly escorted me to the camp's medical officer, a young Russian captain. Question after question was fired at me, but no answer was expected. "Why do you refuse to do your duty as a dentist? Don't you know that your service is needed here? Can you extract teeth? Are you able to complete a treatment which yesterday was started by our surgeon on our commanding officer? What do you know about tooth fractures and root extirpations? When you have proved to be a good dentist, will you serve here as an officer among fellow officers?"

My first patient, a major, was brought to the captain's office, more dead than alive. A Hungarian prisoner, who was not a master of Russian or German, served as translator. My smattering of knowledge of the Russian language, however, permitted a few diagnostic questions, and I was lucky enough to understand the answers. The diagnosis was simple: the second upper right molar was fractured deeply, the roots were still in the alveolus, the gingiva was cut to pieces and hemorrhage was unchecked. I requested dental instruments, and received a pointed bayonet. Anesthesia and antisepsis were unknown. The patient promised to endure the pain without complaint and without shifting his position. And the major kept his promise, I do not know how. In about two hours' work, the tooth fragments and the roots were eliminated. The patient received three cups of vodka and went to sleep happily.

The captain and I celebrated the successful operation by toasting each other until nightfall. I became the camp's dentist, although a dentist without dental instruments. Now I received better food, and no longer had to suffer from the Siberian cold during the winter and from the bites of the "moshkas" (a small type of mosquito) during the summer.

Later, some dental instruments were either constructed in the camp's workshops (those used in the Middle Ages were far superior), or were procured from the Russian Army depots in Moscow and Leningrad (to be used on Russian officers exclusively).

Crowns were constructed as follows: (1) impressions were made with unrefined beeswax, heated either on open fire or on the flames of candles; (2) models were cast and roughly filed from malleable iron bars; (3) crowns were made from the same material; (4) soldering was done with primitive blowpipes borrowed from the camp's plumbers, and (5) polishing was done by hand with sandpaper which had to be used again and again.

My patients did not care whether the crowns of posterior teeth were positioned correctly; only the anterior teeth had to be fitted with highly polished crowns.

Slowly, implements and prosthetic materials arrived. As a substitute for plaster or gypsum, I had to use alabastrine solutions usually used by

bricklayers. An excellent base material for artificial dentures, called A.K.R. 7, was obtainable, which in color, stability and durability was equal to materials used in Germany. Arsenic, syringes, ampules, anesthetics and disinfectants were not obtainable. Most of my patients preferred tooth extraction to conservative or prosthetic treatment, and more than 100 extractions had to be performed daily.

Russians, Ukrainians, Manchurians, Mongols and members of the other races seemed to be able to bear extreme pain during the most excruciating operations but complained like crybabies over the slightest toothache.

Many attempts were made to keep me in Siberia under the most favorable circumstances. These attempts were repeated in the Soviet zone of Germany, but after I was set free, 100,000 horses could not hold me.

British lead way in providing tax break for self-employed

U.S. News & World Rep. p. 136 May 11, 1956

In the new British budget is a program to give self-employed persons—and many others—a grant of tax freedom on some of the income they set aside for retirement. American businessmen and professional workers—physicians, dentists, lawyers and others—have been seeking unsuccessfully to get Congress to grant this privilege.

Britons will be permitted to lay aside up to one tenth of their annual income to build a personal fund for retirement. Income saved under the system will be tax-free. Money put aside in this way will be used to purchase special annuities from insurance firms, or can be put into retirement funds created by business or professional associations. The annual limit on income to be made tax-exempt in this way will be \$1,400.

Whether the exempted income goes into personal annuity policies or into group retirement funds, the money will be tied up until the person retires, or until he dies or is disabled. Britons probably will be able to get their pay-off at age 60 if they like.

The British plan will also grant the tax freedom to those British employees—in addition to self-

employed persons—who have no company pension plan. Some 10,500,000 to 11,000,000 persons—about 1,500,000 of them self-employed—are to come under the new program.

The British decision to grant this new retirement program for the self-employed is bound to create renewed demand and hope for a similar plan in the United States.



Licensure

How many dentists, dental technicians and unqualified dental practitioners exist in West Germany? (Wieviel Zahnärzte, Dentisten und Heilpraktiker gibt es in Westdeutschland?)

E. Heinrich. *Deut. Zahnärztebl.* 10:73
Jan. 22, 1956

Statistics published by the West Germany Ministry for Labor and Health reveal that on April 4, 1955, about 27,000 dentists and 132 dental technicians were practicing in West Germany. About 17 per cent of the dentists and 13 per cent of the technicians were either immigrants or evacuees. The ratio between licensed dentists and population was 1 to 1,600.

A few months ago, the West German "Bundestag" discussed a law which would check the activities of unqualified (unlicensed) dental practitioners. Because many of the representatives wanted further investigation, the proposed law was tabled.

At the request of the representatives who were in favor of the Dental Law, the West German Public Health Authorities published a statistical report on the activities of unlicensed practitioners. More than 7,000 "Heilkünstler" (artists of healing) still treat thousands of patients. The number of these unqualified practitioners, however, is decreasing steadily because of deaths and stricter governmental control. Most of these charlatans now are old men, and no increase in their group is observable.

▼
Forensic dentistry

**The dentist's liability in tort
and his legal position in general**

Kristen Andersen. *Norske Tannlaegeforen. Tid.*
66:38-47 Jan. 1956

The dentist's liability in tort is confined generally to culpa (the collective term for intention and negligence) liability. To avoid culpa liability, the dentist's conduct and mode of action, as regards attentiveness and care, should in the main satisfy the requirements for professional, social and human conduct.

A dentist, to avoid coming in conflict with the objective standard of carefulness, must act in accordance with the average professional standard. The dentist cannot plead that he was tired or overworked, or that he was unable to keep abreast of developments in his profession. He must keep himself constantly acquainted with everything that may be considered as common professional knowledge of dental science.

A lazy and superficial dentist who by chance comes across a "professional innovation" should use care in introducing the innovation into his practice. New methods are often combined with risk. It might be considered careless of the lazy, superficial dentist to risk a new method, whereas no fault could be found with the alert, thorough and eminent dentist who does it. There is a strong case for maintaining that the dentist of average ability should desist from professional daring and experimentation. Even the eminent dentist, however, should be reluctant to take professional risks or attempt any experimentation in instances where little may be won but much may be lost.

To treat his patients as "test objects" to too great an extent is a practice which may have economic and legal consequences for even the most capable dentist. Professional vanity must be kept under control so that it does not supersede the consideration due the patient. The fact that a patient pays a small fee or none at all does not en-

title the dentist to expose the patient to an increased risk, no matter how much such a risk would promote dental scientific research.

It cannot reasonably be demanded of a dentist that he inform the patient thoroughly of all possible dangers that may be incurred by the treatment. If the danger or the possibilities of danger are comparatively great, however, and if there is no pressing necessity for the patient to submit to the treatment, the patient must be given thorough information in order that he may choose whether to submit to the treatment.

The fact that a dentist under professional doubt makes a choice of treatment that afterwards proves to have been wrong cannot be described as carelessness, so long as the dentist's doubt did not arise from lack of professional knowledge.

The expert's opinion in cases of liability plays a prominent role. Judges, when it comes to medical questions, are absolute laymen.

The fact that a dentist has taken out insurance against liability does not in principle have any effect on the decision as to whether he has incurred culpa liability.

The identification of human remains

Charles A. St. Hill. *M.Press* 235:397-401
May 9, 1956

Various methods are used in identifying human remains. If only fragments of the body are found, if putrefaction is advanced or only skeletal elements remain, the problems may be difficult. Their solution depends on close cooperation between the pathologist and his colleagues specializing in anatomy, dental anatomy, pathology, roentgenology and other subjects. The two stages of investigation are (1) an examination of the remains in the place and position in which they are found, together with the surroundings, and (2) a general examination of the remains in the mortuary.

An effort is made to determine the sex, age and stature of the body.

Determination of sex from the skull rests on general differences in form and build rather than on physical measurements. Female skulls are more lightly built; the muscular markings and

bony protuberances are less well developed; the mandibles, palate and frontal sinuses are smaller, and the orbital openings tend to be larger and more rounded.

An expert examination of the teeth may afford an accurate assessment of age. Obviously, the eruption and development of deciduous and permanent teeth provide a good guide to age in the first two decades of life. In older subjects, the dental features on which an opinion may be formed consist of wear caused by mastication, the degree of recession of the gum line down to the root, changes in the root caused by gradual closure of the root orifice and root resorption, and finer changes such as the laying down of secondary dentin in the pulp cavity and of cementum around the root. Many of these observations can be made only after the preparation of ground sections of the tooth. Gustafson (1950) proposed a mathematical formula for correlating the advance of these features with age; by its means a considerable degree of accuracy may be attained. In the Christie case, external examination of four teeth found in the backyard led to an opinion that they belonged to one individual 30 to 35 years old; Gustafson's examination of the ground section of one of these teeth led him to conclude the age was about 35 years. These ages were consistent with their having belonged to one of Christie's presumed victims who was 32 years old.

When the age, sex and stature of the body have been reconstructed as far as possible, the problem of positive identification has to be solved. The comparison of the dentition data of unidentified bodies with a dental surgeon's records of a missing person may be as important and specific as are fingerprints in identification. Since teeth and many dental prostheses are relatively indestructible, they may remain in good condition when practically all the rest of the body has been destroyed.

The advent of the National Health Service and the consequent availability of dental services to all, together with the use of standard dental records, is resulting in an accumulation of accurate dental data on a large proportion of the population; these will play an increasingly important part in the final identification of unknown remains.

Dentistry in government

The medical and dental professions in the welfare state

J. Ll. Saunders. *New Zealand D.J.* 52:70-74
April 1956

Today, in the era of the so-called "welfare state," the pattern of dental and medical practice is shaped to a considerable extent by the desire of governments to make these services widely available to the people.

Professional practice prior to the welfare state was individualistic. The young graduate could feel no assurance that he would at once be successful in earning a living. Types of practices varied, as did fees.

Under the welfare state, professional practice has become more highly organized. Dentists and physicians are called on to provide two types of service—curative and preventive, with special emphasis on the latter. The demand for health services has increased. Another modern development is the availability of funds for medical research in all its branches.

The newly organized health services have their weaknesses. There are many unnecessary calls on a doctor's time, and too often he has to work with a feeling of undue pressure. The patient, with his new-found ability to invoke professional services, has yet to learn to place himself in the hands of one dentist or one physician, who will make a personal study of his case and advise him over the years. Many people do not use the health service to the best advantage.

The services are themselves educational, however. The public will come to a better appreciation of their value and will learn to use them with understanding, discrimination and intelligent restraint. It is easy to criticize modern health schemes for their shortcomings, but it must be remembered that these new services are as yet only in their infancy. Shortcomings will disappear in time. A welfare state is not necessarily a dictator state, and we of the Western democracies prefer to make our mistakes and profit by them.

Operative dentistry

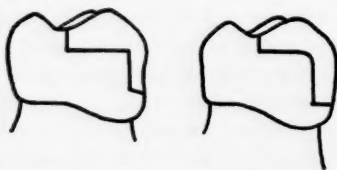


Inlays and fillings

Compound cavities in deciduous molar teeth

T. C. Crewe. *School D.Serv.Gaz.*, New Zealand
16:15-16 March 1956

Compound Class II cavity preparations in deciduous teeth present several problems. The factors causing concern are the size and shape of the pulp, proximal contour and the direction of the enamel rods. In deciduous teeth the pulp is relatively large (compared with the pulp in permanent teeth), so the cavity must be kept shallow. This means that the filling will be weak, especially at the junction of the occlusal and proximal portions. To meet the problem, the occlusal section should be made as wide as possible at the junction to provide sufficient bulk of metal. A slight dovetail is necessary.



Axiopulpal line angle is slightly beveled. Left: Incorrect method. Right: Correct method



Cavity preparation in deciduous molar. Occlusal section is as wide as possible at junction. Left: Incorrect method. Right: Correct method

A slight beveling or rounding of the axiopulpal line angle greatly increases the strength of the junction. Even if this is done, however, the occlusal portion must not be relied on to provide retention for the proximal portion. To make the proximal portion self-retentive, the following steps are necessary: (1) the buccal and lingual walls must diverge towards the gingiva; (2) the axiogingival, axiobuccal and axiolingual line angles must be sharp, and may be accentuated at the expense of the gingival, buccal and lingual walls, respectively, and (3) the gingival wall must be flat and at right angles to the direction of the forces of mastication, to avoid any displacing inclined planes.

To guard against the danger of losing the gingival wall when preparing deep cavities, the gingival wall should be placed in the cingulum whenever possible.

In the gingival region of deciduous teeth, the enamel rods run horizontally; in smoothing the margins of enamel, the whole gingival wall—enamel and dentin—should be flat and horizontal.

An editorial note observes that the technic of beveling or rounding of the axiopulpal line angle in compound cavity preparations in deciduous teeth has now been adopted as recognized procedure, to be taught at all schools and to be adopted by field officers of the division of dental hygiene of the Department of Health, New Zealand.

Clinical experiences with self-curing resin filling materials (Kliniska erfarenheter av kallpolymeriserat som tandfyllnadsmaterial)

Björn Hedegard. *Norske Tannlaegeforen.Tid.* 65:487-507 Dec. 1955

The introduction of self-curing acrylic resins and the manufacturers' claims of the superiority of these materials over silicate cement have given rise to a widespread use of acrylic resin filling materials.

This study, initiated in 1950, was planned as a comparative study of silicate cement and self-curing acrylic resin filling materials in an attempt to answer the following questions: (1) Do non-insulated acrylic resin fillings result in clinically observable damage to the pulp? (2) Do insulated acrylic resin fillings result in clinically observable damage to the pulp? (3) How do the frequency of poor marginal adaptation and secondary caries compare in silicate cement and acrylic resin fillings?

In a preliminary study, 40 patients had one acrylic resin filling each placed in a cavity prepared in an anterior tooth, with simple caries. Symptoms of damage to the pulp were noticed in a few teeth at an early stage, and the investigation was expanded further to include 634 fillings in 518 teeth in 471 patients; 118 of these fillings were silicate cement fillings, 172 were Kadon, 152 Sevriton, and 192 Swedon acrylic filling materials. All fillings were placed in Class III and Class V cavities prepared with steel burs under an air stream with the cavity walls at right angle to the surfaces of the teeth; undercuts were placed with inverted cone burs and accentuated by wheel burs. A rubber dam was used whenever the cervical wall was closer than 1 mm. from the gingival tissue. Zinc phosphate cement was used as a base except in the 40 patients with noninsulated acrylic resin fillings.

Only vital teeth were used. Drilling without anesthesia was used to establish the vitality by clinically observable pain. Once the vitality was established, the patients received local anesthesia if they so desired.

All filling materials were placed according to the manufacturer's directions using excess material and pressure with a metal strip for silicate

cement, Sevriton and Kadon, and the reactor technique for Swedon. After removal of the strips, carbide instruments were used to cut away the excess material. Final polishing was carried out one week later using petroleum jelly coated sandpaper disks.

The fillings were kept under observation for from 2½ to 3 years, at which time the fillings were removed and the vitality of the teeth was again tested by drilling.

In the group of 40 noninsulated resin fillings, 22 were classified as shallow and 18 as rather deep. Six teeth showed gangrenous necrosis of the pulp during the 2½ year observation period. Five of these belonged to the "rather deep" category. The symptoms were observed 3½ months (2 teeth), 7, 11, 14 and 16 months after the filling of the teeth. The remaining 34 teeth showed normal vitality of the pulp after removal of the fillings at the end of 2½ years. It was concluded that noninsulated acrylic resin fillings may cause pulp damage.

The 634 fillings in 518 teeth insulated with a phosphate cement base showed no incidence of clinically observable damage to the pulps over a three year period. The teeth showed normal vitality at the end of the observation period.

Marginal adaptation was checked immediately after the polishing of the fillings and after one, two and three years of service and rated as follows:

Good: No objections.

Fair: Clinically acceptable but a tendency to discoloration noticed.

Unsatisfactory: Definite discoloration at the margin; the edge may be felt by probing.

Bad: Considerable discoloration at the margin; a sharp probe will stick between filling and tooth.

Microscopic examination was carried out by use of a pocket microscope at 50 times magnification. The microscope was modified so that it could rest on the tooth in the mouth during the examination. The fillings were rated as follows:

Good: No space has formed along the cavity margin.

Fair: Contact between filling and tooth is interrupted at one spot.

Unsatisfactory: A small space is noted between tooth and filling.

Bad: A distinct space is seen between tooth and filling.

Only that part of the cavity margin which was exposed labially was examined microscopically.

In two tables the rating and percentage distribution are listed for all insulated fillings according to the two methods after three years of service. Secondary caries frequencies are also given for all types of fillings. A third table gives the comparison between results obtained by clinical and by microscopic examination.

The comparison of acrylic resin filling materials and silicate cement showed a significantly higher frequency of poor marginal adaptation and secondary caries over the three year period for the resin filling materials. These materials are therefore considered unacceptable as filling materials.

Ward's cavity is not adequate for castings.

The ideal cavity. (La cavidad de Ward no es apta para incrustaciones. La cavidad ideal)

A. A. Ritacco. *Rev.A.odont.Argentina*
44:103-106 March 1956

Ward's cavity preparations for metallic castings were designed by their author to replace Black's cavity preparations which had failed the same purpose. Ward's cavities of the MOD type are inconvenient in that the axial walls of the proximal boxes converge toward the occlusal surface, and in trituration the lateral walls diverge toward the occlusal surface.

When a casting of the MOD type is made on a Ward's cavity with proximal boxes that are not sufficiently deep, the casting has no anchorage. If a Ward's cavity of this type is transformed into Irving's type by carving slices in both proximal boxes, anchorage for the casting is secured at the lower end of the slices. This region in the new cavity corresponds to the regions of anchorage for castings of this type, which is given by the axiopulpal angles and the proximal regions of preventive extension in the dental walls. Ward's proximooclusal cavities have the same inconveniences as Ward's cavities of the MOD type. Both types of cavity preparations have been prac-

tically abandoned. An ideal cavity of the MOD type for metallic castings can be prepared as follows:

1. The cavities are prepared with "slices." (This step allows the axis of rotation of the castings to reach toward the gingival surface during masticatory stress, a factor which insures anchorage of the casting.)

2. The lateral walls (labial or lingual) of the proximal boxes are carved with a pronounced divergence toward the occlusal surface. (This step facilitates the taking of the impression.)

3. The axial walls of the proximal boxes should be only slightly convergent toward the occlusal surface. (This factor increases anchorage, which is secured by adequate friction between the metallic block and the dental walls.)

4. The axiopulpal angle is beveled in order to prevent its destruction from the impact of the gold of the cast when it enters the cavity of investment.

5. The walls of occlusal cavities should diverge toward the occlusal surface in all the extensions of the walls with the exception of certain described regions. (This step facilitates the taking of the impression and simplifies the technic of preparation of the cavity.)

6. The regions of preventive extension are prepared with walls either parallel to or slightly divergent toward the occlusal surface. (This region plays an important role in securing anchorage.)

7. In instances in which the axiopulpal angles have been destroyed by caries, reconstruction can be achieved by means of well-retained and well-condensed amalgam. (These angles play an important role in securing anchorage for the castings. Cement should not be used for reconstruction of the axiopulpal angles. It does not resist masticatory stress, which may cause fracture of the angles; therefore, amalgam should be used for this procedure.)

8. Additional regions of anchorage can be prepared by making grooves or acute angles (linguoaxial or labioaxial) in the lateral walls of the proximal boxes and acute angles at the gingivoaxial angles of the proximal boxes. They are difficult to prepare, however, and do not play an important role in the production of anchorage.

In the preparation of the ideal cavity, only steps one to seven inclusive are indispensable. The technic of preparation of the cavity is easy. The cavity meets all the requirements necessary for cavities of the MOD type and it has good anchorage.

Long range approach to the diagnosis problem

Lewis W. Thom. *Minneap. Dist. D.J.* 40:19-21
June 1956

Dental patients consist of those who come regularly to preserve their teeth and those who come because they are in need of dental treatment. For the second group the dentist must, by diagnosis, treatment planning and treatment recreate a broken-down chewing mechanism to as near normal health and function as possible.

The program of rehabilitation must be planned. The necessary extractions must first be made, the periodontal treatment of the remaining teeth completed, and the mouth cleared of any other infection. The operative work is then planned and executed.

In extensive rehabilitation of the mouth, there can be no compromise between so-called "short-term" or "long-term" operative service. The work must be planned to last the longest possible time and must be performed so that the health of the tooth and the surrounding tissues remain healthy as long as possible.

Gold and silver alloy are two materials with which the dentist can treat dental caries. Gold is used in the form of foil or alloy which is cast into a gold inlay. The use of amalgam requires an exacting cavity preparation to obtain the full benefit of this rather weak substance. To compensate for the weak edge strength of amalgam, the cavity must be designed so that the proximal portion will not be dependent on the occlusal portion for retention and so that there will be no thin, frail margins in the stress bearing regions.

The gold inlay procedure requires a cavity preparation from which a wax pattern may be withdrawn in one direction without distortion; inlays must be locked in every direction except that of withdrawal. This locking is created by various

types of mortises within the tooth. The direction in which the pattern is withdrawn should be wherever possible in direct opposition to the masticating stresses.

The restoration made with the amalgam alloy, the gold inlay or foil treatment must not only preserve the health of the tooth but must keep the surrounding tissues of the tooth and adjacent teeth in a healthy, normal condition. The contour of the restoration is important, especially in the contact region. If the marginal ridges of the restorations or the contact points are placed and contoured incorrectly, the surrounding tissues will be irritated instead of stimulated.

Gold foil is still the best material for filling cavities in the proximal and gingival regions of the anterior teeth.

The principles of cavity preparation as taught by Black are, with minor alterations, still sound.

Greater efficiency through modern instruments and higher speeds

Henry M. Tanner. *Ann. Den.* 15:34-37
June 1956

Efficiency in restorative dentistry may be developed by using instruments of the highest quality, by employing improved methods of operation, and by increasing personal efficiency.

The experimental handpieces being developed have extremely high rotary speeds. The cutting rate is superior to that of any previous instruments. The greatest advantage is that the rate of cycles per second is so high that the instruments feel as though they are being rubbed rather than ground.

The following suggestions are offered for operating at high speeds:

1. For maximum control of instruments, a lighter pressure is used. The bur or diamond is moved constantly over the surface of the tooth.
2. Carbide burs should not be rotated in reverse.
3. If diamond instruments vibrate or chatter while rotating against the tooth, the direction of rotation is reversed to eliminate vibration.
4. Rotating instruments should be used either completely wet or air dried.

5. When water is used, direct vision improves visibility. If necessary, the operator should lean over when cutting, for each cut requires such a short time that the action will not be fatiguing.

6. To achieve better visibility toward the end of the preparation, a stream of air (instead of water) may be used.

7. Carbide burs and diamond instruments should not be used until they are worn out. The instruments should be discarded as soon as they provoke a desire to use more pressure to make them cut better.

8. To gain experience in new technics, the dentist should practice on extracted teeth and dentoforms; application should be limited to the more accessible regions first.

9. The so-called "washed field" technic employing the suction principle is a great aid in improving visibility and controlling water. It is a necessary adjunct to preparations with high speed methods. It saves time and promotes better dentistry.

Long appointments, premedication, diamond instruments, tungsten carbide burs, and increased operating speeds combine to permit a more efficient service together with an increase in quality.

Simplification in cavity preparation (Vers la simplification)

Ch. Bonsack, Bienne, Switzerland.

Actual.odontostomat., Paris 32:445-452

Dec. 1955

Although Ingraham and Tanner, in their studies on cavity preparation, adapted some modern methods, these authors and many others have not gone far enough in simplification of technics—a need which is becoming more and more evident.

Marmasse (1955) based his recommendations mainly on the first part of the Ingraham and Tanner report; however, he removed some super-

fluous instrumentation in cavity preparation but remained faithful to the thin wheel disks proposed by Ingraham and Tanner.

A far-reaching simplification in instrumentation may be obtained by better selection of instruments and a different order in distribution during the various stages of the work. The fine wheel disks (0.4 mm. thick) should be replaced with less fragile disks (1 mm. thick and 9 mm. in diameter).

The extension of the cavity preparation frequently necessitates a wide proximal opening, and the slightly rounded edges of the wheels and the diamond surface will cut a wide slice when the smooth surface of the disk is pressed against adjacent teeth.

Ingraham's technic should be modified by using a wheel disk from 1.5 to 1.6 mm. thick and from 9 to 10 mm. in diameter for preparation of occlusal grooves. Proper width and depth will be obtained without additional retouching.

Three simplified procedures are recommended for the preparation of the proximal part: (1) preliminary work with 1 mm. thick wheels; (2) subsequent preparation with hollow diamond fissure burs (from 2 to 2.5 mm. in diameter) applied by concentric movements beginning at the occlusal groove, and (3) in distoocclusal cavities, a cone-shaped diamond drill with a smooth base which cuts deep into the distal preparation without vibration. Without retouching, a neat surface is obtained as well as an easier control than can be secured when Ingraham's disks are used.

The secondary sulcus is prepared with either steel or diamond fissure burs.

By the use of only three or four instruments, a quicker and more satisfying result is obtained than by following Ingraham's technic. A diamond bur used at full speed and with light pressure achieves a perfect finish of the edges.

In all cavity preparations, simplification in instrumentation and technic is essential. Every unnecessary motion and all superfluous instruments should be eliminated.

Preventive and public health dentistry



Caries etiology and control

**Physiologically effective
caries prophylaxis:****magnesium and calcium fluorides**

(Zur Fluor-Propylaxe der Karies:

Magnesiumfluorid und Kalziumfluorid als
physiologische und hochwirksame
Kariesprophylaxe)A. Knappwost. *Deut.med.Wschr.* 81:92-94
Jan. 20, 1956

More than 140 years after it had been established that fluorine is a natural constituent of both the teeth and the bones, the American researcher H. Trendley Dean and his collaborators proved that a relation exists between caries frequency and the fluorine content of drinking water.

This collection of evidence, gained by exact and modern chemicoanalytical methods, has been best demonstrated in a curve, showing the relation between the amount of caries (permanent teeth) observed in 7,257 selected 12 to 14 year old school children of 21 cities of four states and the fluorine (F) content of public water.

The immense number of children examined made it possible to establish the prophylactic effect of fluorides. Today, several series of experiments and tests have shown that fluorides have the following prophylactic effects:

1. An increase in the mineralization of the teeth during the developmental period (antirachitic effect) which explains the decrease of caries incidence (about 70 per cent) when fluorides are administered to children before their second year.

2. A promotion of remineralization in initial caries defects by a thin liquid and alkaligenous

saliva. This effect has been proved by tests with radioactive phosphate (resistance theory).

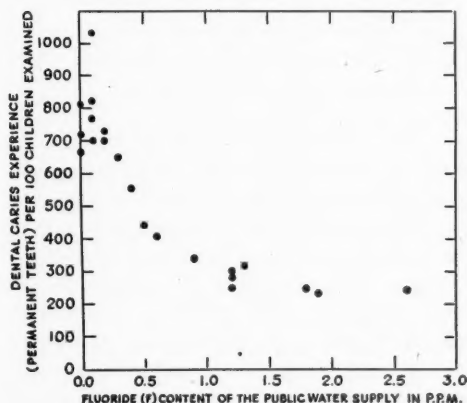
3. The development of fluorine hydroxyapatite (that can be dissolved only with difficulty). This is effected by an ion and fluorine exchange.

The third effect, however, is relatively weak. In many reports, however, it is mentioned as the sole prophylactic result observed.

The second effect is of immense importance. Only by considering remineralization can the decrease in caries incidence in adults (from 25 to 30 per cent) be explained, even if the possibility of an additional local influence of fluorides is excluded.

In regions in which fluoridation of drinking water is impossible because of lack of a centralized water system, the administration of either magnesium or calcium fluoride tablets is recommended. The effect of these fluoride tablets (if properly controlled) approaches that of fluoridation of drinking water. The tablets are dissolved in the intestinal tract and obtain a more proportionate level of blood-fluorine than when sodium fluoride tablets are taken. Proper supervision, however, with 24 hour examinations of the urine, is necessary.

Relation between the amount of caries (permanent teeth) observed in 7,257 selected 12 to 14 year old white school children of 21 cities of four American states and the fluoride (F) content of public water supply (H. T. Dean, F. A. Arnold, Jr., and E. Elvove)



Study of fluoride as a prophylactic means in dental caries (Estudo do fluor como meio profilático na cárie dentária)

P. O. Chaves, H. Ebling and B. Futuro.
Rev. Gaucha odont. 4:119-128
Oct.-Nov.-Dec. 1955

A program for fluoridation of the water supply of the State of Rio Grande do Sul, Brazil, for partial prevention of dental caries, is under way. It has been found, through determinations of fluoride in the natural water of several cities of the state, that the amount of the element in the water is insufficient. Artificial fluoridation of water supplies is the most efficacious procedure for partial prevention of dental caries of the population. The development of such a program in a community requires the following: (1) construction and maintenance of the water supply system in accordance with the standards fixed by sanitary engineering; (2) determination of the fluoride content in the natural water to permit addition of the element in the right amount, and (3) establishment of the concentration of fluoride in water at 1 ppm.

Technical problems of the program include: Expenses in buying and installing equipment, upkeep of the fluoride-dispensing system, selection and provision of the salts to be used (which should be easy to obtain, available in sufficient amount, at any time and not expensive). The fluoridation system should be selected in accordance with specific local conditions of the water system and its type and also in accordance with the type of salt to be used. Brazilian industry is not yet able to supply fluoride products on an economical basis. The material is available, however, and the industrialists will be able to provide it as soon as the demand appears.

A unit for fluoridation of the water supply of Baixa Gaundú city, of the State of Espírito Santo, was established in 1953. The unit was established as a trial for statistical results by the state for the city, with a population of 4,000 persons. The material used at the present time is sodium fluosilicate (Na_2SiF_6). This product is abundant in Brazil and is not expensive. The analysis of control of concentration of fluoride in the water is made at various points in the fluoridation supply

network by means of the Scott-Sanchis method and the Hellege system for comparison of readings. There is no need for Brazil to wait for statistical results from the trial unit before establishing others. Statistical reports from the United States of America with its extensive fluoridation projects throughout the country, are sufficient. The expenses of the trial unit, however, can be used as a basis of comparison for expenses in the unit to be established in Rio Grande do Sul, with proportional changes for a larger population. Expenses of the S.E.S.P. in the trial unit for a population of 4,000 persons was 23,740.90 cruzeiros (equivalent to \$0.01 for one cruzeiro). These expenses covered the equipment for fluoridation, feed and control apparatus, and provision of fluoride salts sufficient for use for an entire year. After installation of the system, the annual expenses are less than 200 cruzeiros per capita.

Since it has been shown that the amount of fluoride in the natural waters of the State of Rio Grande do Sul is insufficient, a bill should be presented to the Government through the Ministry of Public Health to establish fluoridation in the state immediately, as a partial prevention of dental caries in the population.

Why teeth go bad—here's one theory

Hans H. Neumann and N. A. Di Salvo.
U.S. News & World Rep. p. 86-91 May 11, 1956

The rate of tooth decay increases slightly each year among Americans. Such measures as tooth-brushing and cutting down the sugar intake are inadequate to protect teeth from decay. Heredity is an overrated influence on the decay rate.

When modern aborigines change from a native diet that requires hard chewing to a diet of soft foods, their teeth deteriorate from disuse.

The Otomi Indians in Mexico, although most of their food is soft and liquid, customarily open nuts with their teeth and eat hard toasted beans and toasted corn. Some island people have soft diets, yet crush crustaceans with their teeth. Wherever good teeth prevail, there is some item in the diet that requires hard chewing. The hard, stale, crusty breads of Europe induce beneficial chewing.

Children should be encouraged to use their teeth. They should not be pampered by being given strained baby foods long beyond the time when they are needed. When the child gets his teeth, he should be encouraged to use them, and the more he uses them, the better his teeth will be. In addition, the teeth should receive preventive maintenance by the dentist, and other dietary and hygienic measures should be taken. Children should eat sweets mainly at mealtime, and then practice oral hygiene. The biochemical balance of the diet has little bearing on tooth decay. Excellent teeth are found in tribes with poorly balanced diets, with deficiencies in calcium, protein, fat and vitamins. Vitamins and minerals play a minor role in tooth disease.

Dental observations on Australian aborigines: water supplies and endemic dental fluorosis

M. J. Barrett. *Austral.D.J.* 1:87-92 April 1956

This paper is one of a series which records dental observations made on a group of Australian aborigines at the Yuendumu Native Settlement, Central Australia, by members of Adelaide University field anthropology excursions.

Prior to the establishment of the settlement about ten years ago, many of the native families now living at Yuendumu had only occasional contact with white people and were then mainly dependent on natural sources for their water supplies. Most of the natives now remain at Yuendumu and obtain their water from the settlement bores.

Samples of water collected from a number of native water sources—rock holes, water holes, soaks and springs—contain up to 0.4 ppm fluoride. The bore water used by natives at the settlement contains about 1.5 ppm fluoride. This figure is exceeded in a number of other bores in the vicinity, all of which are used occasionally by the natives.

Of 158 aborigines between 6 and 20 years old, about 30 per cent show signs of mottled enamel. Most of the occurrences were recorded as very mild, a few as mild, and one as moderate (according to Dean's classification). If these enamel de-

fects are caused by the ingestion of excess fluoride, it is likely that a higher incidence will be revealed when the natives have used the settlement bore water continuously over a longer period.

Enamel hypoplasia frequently occurs, particularly in deciduous teeth. It is possible that food deficiencies, childhood diseases and the ingestion of excess fluoride contribute to such malformations.

The fluoride in the settlement bore water probably is inhibiting the cariogenic effect of the preponderance of carbohydrate material in the food rationed to the natives. The progressive breakdown in dental health which might be expected to follow the introduction of the food and eating habits of the white man has not yet become evident among children and adolescents of the native group.

The occurrence of disfiguring dental fluorosis indicates that the settlement bore water is providing more fluoride than desirable under the climatic conditions prevailing at Yuendumu. The natives individually drink more water at Yuendumu than the white inhabitants, particularly in summer. Consideration should be given to the need for reducing the fluoride content of the water by appropriate filtration.

Water fluoridation at Army posts

J.A.M.A. 160:1527 April 28, 1956

Fluoridation of drinking water at 21 Army posts in the United States, Alaska, Hawaii and Puerto Rico has been approved to date. The fluoridation of drinking water at Army installations lacking the natural fluorine necessary for oral health was approved by the Army Medical Service in July 1954. Through the cooperation of the Corps of Engineers, the fluoridation equipment and engineering skill required to install the process are assured. Each military post must obtain the approval of the Surgeon General of the Army and the endorsement of the Corps of Engineers.

In the fall of 1953 the Army Dental Corps requested an opinion from the committee on dentistry of the National Research Council as to the desirability of fluoridating the water supply at

Army posts. The following statement was received from the Council: "The Committee on Dentistry believes that there is sufficient scientific evidence of the merits of fluoridation of public water supply to justify its use on military posts whenever feasible and especially where there is a child population in residence."

Army policy on fluoridation is based on American Dental Association and National Research Council approval, and on recommendations made by the American Medical Association, U. S. Public Health Service and other scientific groups.

Army regulations now in effect to control the granting of requests for fluoridation have a global application. The program is expanding, and no change in Army policy is anticipated in the foreseeable future.

Conditions influencing the incidence of occlusal and interstitial caries in children

Gilbert J. Parfitt. *J.Den.Children* 23:31-39
First Quart. 1956

The incidence of dental caries appears to be under the influence of independent factors on (1) the occlusal surfaces of the teeth, (2) the proximal surfaces of teeth in the buccal segment, and (3) the proximal surfaces of the upper incisors.

The most common sites of dental caries are the occlusal and proximal surfaces of the teeth, which in some respects differ fundamentally from each other. Conditions affecting the incidence of caries in these two sites were studied in various groups of children.

Retention of food and a certain amount of dental caries are found on the distal surface of the last tooth in the dental arch. When another tooth erupts distally, this surface becomes the site of interproximal stagnation, and the incidence of dental caries is greatly increased.

The width of the interdental space considerably affected the incidence of proximal caries. Caries on the proximal surfaces was most frequent when the teeth were in contact, and became progressively less with interdental spacing.

More caries occurred on the distal surface of the first deciduous molar than on the mesial

surface of the second deciduous molar. For every 100 second molars lost by caries, 140 first molars were lost; for every 100 cavities in the mesial surface of the second molar, 131 occurred on the distal surface of the first molar.

Factors which affect the general level of caries without altering the ratio of occlusal to proximal caries include susceptibility of the individual to caries, institutional life and different levels of fluorine in the drinking water.

Caries in each site appeared to be affected unequally by different diets.

Dental caries in rheumatic children

E. C. Dunayeva and L. I. Kachan. *Stomat.*,
Moscow 6:23 Nov.-Dec. 1955

A study, lasting a year and a half, was conducted among 100 rheumatic school children and a comparable group of nonrheumatic children. Rheumatism being more common in school age and teen-age children than in adults, it may, in the adult, represent an aftereffect or the continuation of disease that had its beginnings in childhood. The relation between dental disease and rheumatism was confirmed by the study.

Among the 100 rheumatic children, carious disease was noted in 22 of 25 children aged 7 to 10; in 24 of 38 aged 10 to 12, and in 25 of 37 aged 12 to 14 years. Among the nonrheumatic group, carious disease was found in 3 of 25 children aged 7 to 10; in 4 of 38 aged 10 to 12, and in 8 of 37 aged 12 to 14. Of the 100 rheumatic children, 71 thus had carious disease as compared with 15 in the nonrheumatic group. That the incidence of caries in rheumatic disease is high is obvious. The unclarified question is: Are nidi of oral disease the precursors of rheumatism or does rheumatism merely provide a more favorable environment for their appearance and progress?

The rheumatic children here studied were treated by medication of the pharyngeal and nasopharyngeal regions and received prophylactic care of the oral cavity. Before prophylactic measures were instituted, repeated attacks were noted in 61 children, whereas after prophylactic treatment only 11 persons in the same group had further attacks during the entire period of study.

The basic task was to raise the capacity of the child's organism to resist unfavorable outside influences and microorganisms causing oral and pharyngeal disease. Prophylactic oral treatment proved to be the most important measure in combating oral nidi of disease.

This study was too brief to provide conclusive evidence of the late effects of such treatment, and the contingent of patients observed was small. The preliminary data nevertheless suggest the need to eliminate pathologic foci in the oral cavity, since they may well represent sources of rheumatic disease.



Nutrition

Prophylaxis of caries.

Obstetric point of view (Profilaxis de la caries. El punto de vista obstétrico)

J. C. Pereira. *Rev.A.odont. Argentina*
44:107-108 March 1956

During pregnancy important factors are involved in the development of the fetus and in the growth of the uterine tissues, and as a consequence the organic need of pregnant women for calcium and proteins is increased. An insufficient supply of these substances predisposes to caries, which is common in pregnant and in nursing women. Disorders of the calcium metabolism frequently show in pregnant women by slight symptoms such as cramps, pain, white spots on the nails and fragility of the nails.

Caries can be prevented in this period by the administration by mouth of vitamins, iron and calcium, and a well-balanced diet. This should include daily allowances of 1.5 to 2 Gm. of proteins per kilogram of body weight, one quart of milk and 80 to 100 Gm. of cheese. Pregnant women should eat a normal diet throughout the period of pregnancy and lactation. Normal development of the dental germs of the fetus depends on the diet of the mother during pregnancy. Roentgenographic examinations were made immediately after the birth of newborn infants whose mothers

had had either a sufficient or a poor diet. The development of the dental germs in infants whose mothers had had enough calcium was excellent in 28 per cent and retarded in 24 per cent whereas it was excellent in only 10 per cent and retarded in 62 per cent of the infants whose mothers had had a low intake of calcium. The development of the dental germs in infants whose mothers had had a sufficient intake of proteins was excellent in 37 per cent and retarded in 17 per cent whereas it was retarded in 71 per cent of the infants whose mothers had had a low protein intake, and it was excellent in none. The diet of nursing mothers should also be examined for proteins and calcium. An analysis of the milk of nursing mothers on a poor diet showed low caloric values per liter of milk. The value became normal within ten days of the administration of a normal diet. In giving advice to pregnant or nursing women on diet and the prevention and treatment of caries, the obstetrician should seek the cooperation of dieticians, pediatricians and dentists.

Nutrition in public health dentistry (La nutricion en odontologia sanitaria)

C. Gomex Llanos de Naranjo. *Gac.odont.*
2:248-263 Dec. 1955-Jan. 1956

Public health dentists strive to prevent dental disease in communities by investigating and controlling the possible causal factors, including nutrition. Normal nutrition plays an important role in the formation, development and preservation of oral structures, in the prevention of dental diseases and in the results of their treatment. Periodic surveys of the nutrition of the people are important in public health dentistry because nutritional deficiencies are frequently the cause of dental disease, the prevention and treatment of which depend on the correction of the nutritional errors.

The author prepared a pamphlet on public health dentistry in which the condition of dental structures is related to the diet consumed by pregnant and nursing mothers and by infants and children up to the age of 12 years. Two charts (odontologic and dietary, respectively) are presented. The odontologic chart has a geometric index of

caries (modified chart of Boedecker and Reis Viegas) and also an index of other dental and periodontal conditions. The general data (name, age, sex, place of birth, address, and so forth) and the clinical data (index of dental caries and of susceptibility to caries) appear on the upper left and right corners, respectively, of the chart. The data on dental heredity, past and present clinical dental history of the person under examination, the medical diagnosis, chemical and bacteriologic analysis, and the results of the test of susceptibility to caries appear on the back of the chart.

The dietary chart contains the person's nutritional history from the prenatal period to the time of the examination. The periods are divided into prenatal, lactation, childhood, preschool and school ages. This division serves to detect at what time in the person's life the nutritional errors occurred and how long they lasted. The chart also summarizes the diet consumed by the mother during pregnancy and by the person from infancy to the age of 12 years. It also includes formulas of diets consumed as a basis on which to establish the normal averages so that normal and poor diets can be compared in each instance. The charts can also be utilized in studies on the relation between nutrition and the various phases of public health dentistry.



Hygiene and prophylaxis

Clinical experiment on the use of sodium N-lauroyl sarcosinate in the control of dental caries

L. S. Fosdick. *Science* 123:988-989 June 1, 1956

A dentifrice containing 2 per cent sodium N-lauroyl sarcosinate, an effective inhibitor of hexokinase *in vitro*, was tested clinically at four geographical locations. Each geographical group of subjects was divided into the following test groups: T-1-D, dentifrice containing 2 per cent sodium N-lauroyl sarcosinate used morning and night; T-2-D, same dentifrice used after each meal; C-2-D, dentifrice identical to T-1-D and

T-2-D except that the sodium N-lauroyl sarcosinate was replaced by 2 per cent sodium salt of sulfated glyceride of coconut fatty acids; C-1, unsupervised use of dentifrice of subjects' choice.

Tests were initiated on 2,543 individuals; 1,883 remained at the end of one year, 1,159 at the conclusion of the two year experiment. The results indicate that sodium N-lauroyl sarcosinate in a dentifrice, when it is used either morning and night or after meals, will reduce caries activity materially.

An introductory study of the self-cleansing action of the mouth

D. H. Goose and H. P. A. Jones. *Brit.D.J.* 100:272-275 May 15, 1956

Thirty-six boys and girls eight and nine years old were asked to chew a piece of white bread weighing 10 Gm., and were examined to find the average cleansing time, the variability around this average, and the importance of various factors in the cleansing process. The children were asked to tell the examiner when all the food had gone from around their teeth. The same procedure was followed with stone-ground whole-wheat bread of the same weight. The muscle activity when eating brown bread was assessed by observation and palpation of the masseter and temporalis muscles and by hooking a finger into the corner of the mouth, and was graded good, fair or poor. The activity of the tongue in cleansing the mouth was assessed by observation. DMF rates were recorded.

After eating white bread the mean self-cleansing time was 7.81 minutes, and the range was between 2.5 and 32 minutes. Those who were "aware" when all debris had disappeared from their mouths showed a significantly lower mean cleansing time than those "not aware"; the efficiency of the cleansing process must depend much on the perception of debris in the mouth by taste and touch.

Tongue activity in cleansing varies in amount and is associated with being "aware" of debris. Not much activity of lips and cheeks was noted. Instructions on how to rinse the mouth correctly may be useful for children. The degree of muscle

action during mastication influences cleansing time but shows no particular relation with tongue activity.

Brown bread was removed from the mouth in an average time of 1.16 minutes sooner than was white bread. The debris from brown bread was not so soft and pappy as that of white. It is probable that a tougher, more tasty diet would cleanse the mouth more rapidly.

No direct relation between cleansing time and DMF rate was found and the reasons for this are discussed.



School dentistry

Understaffed health department dental clinics

Editorial. *Proc.Inst.Med.Chicago* 20:402-403
Dec. 15, 1955

Forty-seven single chair dental clinics in Chicago grade schools function under the supervision of the Board of Health, which also operates three chairs for school children in settlement centers. In 1946, 30 dentists were employed to operate the 50 clinics. A Chicago and Cook County health survey recommended that the staff be increased to 55 to serve an elementary school population then estimated to be 310,000. On January 1, 1955, the staff was reduced to its present number—one director, one supervisor and 19 clinicians. The school population has risen to more than 600,000, of whom it is estimated that over 100,000 are from medically indigent families. It is estimated that 86 full-time dentists would be necessary to meet their dental needs.

With 19 dentists, 31 clinics are always idle despite the serious need for dentistry for children in low income families. There is a waiting period of as much as two years for an appointment in the children's dental clinics of the three dental colleges in Chicago.

Annual inspections made by the Board of Health reveal that the teeth of Chicago children

average five unfilled cavities for every one that is filled. These untreated cavities can result only in the early loss of teeth designed for adult function.

The greatest improvement in future dental health can be realized through better care of children. Dental caries is primarily a childhood disease, and periodontal disease too frequently begins with the neglected gingivitis of children. The early detection and proper treatment of these lesions would do much to reduce the crop of adult dental cripples.

The Chicago Dental Society and the Welfare Council have petitioned the Mayor and the Health Commissioner to augment the Health Department's dental staff sufficiently to make full use of all the presently available dental facilities, but have elicited no commitments.

New York, with a population about twice that of Chicago, has 196 dental chairs providing dental service for children under the supervision of its Health Department. It employs a staff of 300 dentists, dental hygienists and dental assistants.

Health Department dental clinics in the Chicago public schools

Editorial. *Proc.Inst.Med.Chicago* 21:55-56
May 15, 1956

An editorial in the December 1955 issue of the *Proceedings* called attention to the need for increasing the dental services provided by the Chicago Board of Health. Herman N. Bundesen, president of the Board of Health, shortly thereafter wrote the Institute of Medicine in Chicago that an additional \$50,000 for dental services had been appropriated for dental services in the corporate budget for the year 1956, adding:

"With this increase in our appropriation we have added ten dentists to our staff. Therefore, at the present time we have 29 dentists, one supervising dentist, and one chief of the Dental Health Section, giving us a total dental personnel of 31 men. We were operating 47 clinics in the Chicago public schools and three in settlement centers with a staff of 19 dentists. The addition of ten new dentists will enable us to operate these clinics more efficiently and give better dental service to the school children of Chicago."

Doctoral and Masters' dissertations



In this column each month are listed recent Doctoral and Masters' dissertations of dental interest, accepted by the dental schools or graduate schools in partial fulfillment for advanced degrees. Copies of many of these theses are available from the schools through interlibrary loan.

A radiographic evaluation of the temporomandibular joint in children possessing excellent occlusion of the teeth. *James W. Anderson. 1956. M.S.D. Northwestern University.*

An electromyographical comparison of excellent anatomical occlusion subjects and Angle's Class III subjects. *Robert C. Blenkner. 1956. M.S.D. Northwestern University.*

A serial cephalometric radiographic study of the anteroposterior relation of the maxilla and mandible in individuals with excellent occlusion of the teeth. *Don H. Carlson. 1956. M.S.D. Northwestern University.*

Effects of cortisone in treatment of gingivitis, locally and systemically administered, with and without other forms of treatment. *Emile T. Fisher. 1956. M.S.D. Northwestern University.*

A functional radiographic study of the opening movement of the mandible in children with excellent occlusion and malocclusion of the teeth. *Frank H. Klepacki. 1956. M.S.D. Northwestern University.*

A cephalometric radiographic evaluation of face height in adult males with excellent occlusion of the teeth. *Herbert A. Lippitz. 1956. M.S.D. Northwestern University.*

A cephalometric radiographic study of tongue position in individuals with cleft palate deformities. *Thomas L. McKee, Jr. 1956. M.S.D. Northwestern University.*

Stress studies in acrylic resin. *E. A. Wain. 1955. M.Sc. University of Manchester.*

A study of the local anesthesia lignocaine with special reference to its stability, the effect of hydrogen ion concentration and assay processes. *J. A. Grundy. 1954. M.Sc. University of Manchester.*

An investigation into the bacteriological control of infected root canals in human teeth. *P. Hobson. 1955. M.Sc. University of Manchester.*

Studies of the cuticles covering the enamel surface of the human tooth. *E. P. Turner. 1953. M.Sc. University of Manchester.*

Examinations of the relation between the activity of the masseter muscles and that of the temporalis muscles in the dentition of children from two to eight years old (Untersuchungen über die Beziehungen zwischen Masseter-und Temporalistätigkeit und Gebiss bei zwei- bis acht-jährigen Kindern). *Ellen Jacobsen. 1955. DR.MED.DENT. University of Freiburg, Germany.*

Supracondylar fractures of the humeral bone from the accident to the final check-up: statistical data of the Surgical Clinic of the University of Freiburg and of the District Hospital of Lahr (Die supracondyläre Humerusfraktur vom Unfall bis zur Nachuntersuchung statistisch erfasst in der Chirurgischen Universitäts-Klinik Freiburg i.Brsg. und am Bezirkskrankenhaus Lahr). *Walter Kopf. 1955. DR.MED.DENT. University of Freiburg, Germany.*

Carcinoma of the tongue, its treatment at the Surgical Clinic of the University of Freiburg from 1933 to 1951 (Das Zungenkarzinom und seine Behandlung an der Chirurgischen Universitäts-Klinik of Freiburg in den Jahren 1933-1951). *Georg Storch. 1955. DR.MED.DENT. University of Freiburg, Germany.*

Examination of the activity of the masseter muscles in infants and small children, consideration of its relation to dentition (Untersuchungen der Aktionsströme der Masseteren an Säuglingen

und Kleinkindern unter Berücksichtigung ihrer Beziehungen zur Bezahnung). *Käthe Stulz*. 1955. DR.MED.DENT. *University of Freiburg, Germany*.

Examination of the relation between the formation and dimension of parts of the temporomandibular joints and the mandibular movability in instances of anomalies of the jaws accompanied by displacement of the mandibular middle line (Untersuchungen über die Beziehungen der Gestaltung und Bewegungsgrösse einzelner Teile beider Kiefergelenke zu den Bewegungsausmassen des Unterkiefers bei einzelnen Dysgnathien mit mandibulären Mitteilinierverschiebungen). *Hugo Gress*. 1955. DR.MED.DENT. *University of Freiburg, Germany*.

Experimental examination of the possibility for increasing the activity of the masticatory muscles in children in whom the Andresen-Häupl's activator has had an insufficient effect (Experimentelle Untersuchungen über die Möglichkeit der Steigerung der Kaumuskeltätigkeit bei Kindern mit ungenügender Wirkung des Andresen-Häupl-Apparates). *Alex Dortenmann*. 1955. DR.MED.DENT. *University of Freiburg, Germany*.

The dentition of Prosimiae (Der Zahnbau der Prosimier). *Ilse Keller*. 1954. DR.MED.DENT. *University of Greifswald, Germany*.

The musculature of the jaws in tortoises and turtles (Beiträge zur Kiefermuskulatur der Schildkröten). *Gert Horst Schumacher*. 1954. DR.MED.DENT. *University of Greifswald, Germany*.

The results of an investigation of school dentistry in Neubrandenburg (Untersuchungsergebnisse der Jugendzahnbehandlung im Stadt- und Landkreis Neubrandenburg). *Renate Markefsky*. 1955. DR.MED.DENT. *University of Greifswald, Germany*.

Importance of dental focal infection in rheumatism; prevention of relapse (Beitrag zur Bedeutung der dentalen Herdinfection beim Rheumatismus unter besonderer Berücksichtigung der Rezidivprophylaxe). *René E. Lirot*. 1955. DR.MED.DENT. *University of Hamburg, Germany*.

Overexertion of dentists—its effect on their health (Arbeitsbelastung des Zahnarztes und Gesundheitsfolgen). *Günther Lindemann*. 1955. DR.MED.DENT. *University of Hamburg, Germany*.

Examination of the relation between nitrogen content, amino acid content and the biologic activity of allergenic extracts (Untersuchungen über die Beziehungen zwischen Stickstoff- und Aminosäuregehalt und biologischer Aktivität von Allergenextrakten). *Benno Kallage*. 1955. DR.MED.DENT. *University of Hamburg, Germany*.

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CONTRIBUTING ABSTRACTERS

Finnish, Russian
PAULA COLLUCK
BARBARA KESSLER, M.D.

Greek
GEORGE G. PHILIPPAS, D.D.S.

Japanese
MASAO ONISI, D.M.S.C.

Scandinavian
GUNNAR RYGE, D.D.S.

Spanish-Portuguese
ELOISA DEBARROSO
JOSEFA THORNTON
GEORGE FRENCH, D.D.S., M.D.

Medical
A. F. BARANOFF, D.D.S.



